Arboricultural Report

Assessment of trees and landscape proposals in relation to development for planning purposes

46 Avenue Road
St Johns Wood
London
NW8 6HS

February 2017

140323-PD-21A

TIM MOYA ASSOCIATES

Rev. A	28.02.17 – minor revisions made following comments made by BB Partnership Ltd.

Project	140323-PD-21 – 46 Avenue Road, London NW8
Report Type	Arboricultural report for planning purposes
Checked by	TC
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1 SUMMARY REPORT

1.1 This arboricultural report has been commissioned by BB Partnership Ltd (Chartered Architects) to provide information to assist all parties involved in the planning process to make balanced judgements with regard to arboricultural features in relation to the proposed development at 46 Avenue Road, St Johns Wood, London, NW8.

1.2 The planning application is for a replacement house with façade retention comprising a six bedroom four storey property with new basement and garden summer house. This application will include the demolition and rebuild of the existing four storey main house and summer house and is in line with previous approvals including 2014/7452/P, 2014/6395/P, 2015/0962/P as well as the requirements made by Eyre Estates.

1.3 This report includes:

- an assessment of the trees, their quality and value and constraints to development posed by these;
- the context and observations of the trees on the site;
- previous arboricultural involvement;
- the planning policies relevant to the consideration of the trees on the site;
- the proposed new tree planting;
- the impact of the proposed development upon the tree population in and around the site;
- methods of reducing impacts on trees;
- measures to be taken to protect trees during the proposed works.

1.4 My conclusions are that the development proposal in respect of trees is acceptable; best practice guidance has been followed in the assessment of trees and this has informed design in the early stages of the process, the proposal is sustainable removing only trees of low quality.

1.5 The basement design ensures sufficient levels of soil to support the planting and establishment of new soft landscaping. Furthermore, drainage has been designed to ensure that the new basement construction will have no adverse impact on water availability for existing trees in the area as a result of this proposal.

2 INTRODUCTION

2.1 My name is Gavin Rees; I am a senior arboricultural consultant dealing with trees in relation to all forms of human activity including built development. I have a National Diploma in Arboriculture as well as extensive experience as a local authority tree officer.

Scope and limitations

2.2 My report aims to provide support to the proposal in relation to trees on the site and to demonstrate that important trees can be retained, where necessary any potential conflicts can be designed out, and that tree loss can be sustained with suitable replacement trees.

2.3 The survey is not an assessment of health and safety of trees and no recommendations for works have been provided, however trees identified as imminently dangerous have been highlighted in the tree schedule where appropriate.

2.4 The contents of this report are copyright of Tim Moya Associates and may not be distributed or copied without the author's permission. Tim Moya Associates Standard Limitations of Service apply to this report and all associated work relating to this site.

Background and documents provided

2.5 My report has been prepared with reference to the following supplied information:

Document	Company	Ref No.
Topographical survey (May 2010)	Laser Surveys	L 4766/2
Existing Ground Floor & Basement Plan	BB Partnership	FQM-102
Proposed Ground Floor & Basement Plan	BB Partnership Ltd	FQM-104

2.6 The site is subject to planning approval dated 21 January 2015 reference 2014/6395/P, by the London Borough of Camden for excavation to extend the existing single storey basement below the footprint of the dwelling house and part rear garden, including two front light wells and two rear light wells, demolition of existing outbuilding and erection of a single storey ground floor outbuilding in the rear garden. Other current approvals include:

- 2015/0962/P Adjust position of proposed rear light well No. 1 and the walk on roof light granted under reference 2014/6395/p dated 21/01/15; and
- 2014/7452/P Erection of a single storey rear extension at ground floor level and single storey rear infill extension at first floor level. Installation of canopy to rear.

2.7 Tim Moya Associates (TMA) provided an arboricultural impact assessment (AIA) report reference 140323-PD-11 dated March 2014 as supporting documentation for the approved planning submission.

2.8 Robert Murison, arboricultural consultant for TMA visited the site and the rear gardens of the adjacent properties 44 and 48 Avenue Road on 02 December 2015. The purpose of this visit was to update the tree survey particularly where access to neighbouring properties was previously unavailable, and to undertake a visual amenity valuation of G1 (now referred to as T12-22).

Supporting Information

2.9 This report should be read in conjunction with the supporting documents attached to the appendices.

Document	Ref No.	Location
Tree Survey	140323-P-20	Appendix A
Proposed layout and tree removals	140323-P-21	Appendix A
Tree protection plan	140323-P-22	Appendix A
Tree Schedule	140323-PD-20	Appendix B
Tree Works Schedule	140323-PD-22	Appendix B
Temporary Ground Protection	-	Appendix C
Helliwell Calculations	-	Appendix D

Landscape Plan	140323-L-01	Appendix E
Concept Borehole Locations	11/2390	Appendix F

Methodology and guidance

2.10 I have referred to British Standard 5837: Trees in relation to design, demolition and construction (2012) which provides a methodology for the assessment of trees and other significant vegetation on development sites.

2.11 BS 5837 (2012) is intended to assist decision making with regard to existing and proposed trees and sets out the principles and procedures to be applied to achieve a harmonious relationship between trees and structures that can be sustained for the long term.

2.12 The Building Research Establishment (BRE) has also produced several documents between 1998 and 2006 in relation to trees and site layout planning, sunlight, daylight, shading and urban cooling. These documents consider trees and their relationship with buildings and garden usage, including the benefits they bring in terms of welcome shade or urban cooling, advising a balanced approach to these issues in design.

3 OBSERVATIONS AND CONTEXT

Site visit

3.1 The most recent site visit was undertaken by TMA on 02 December 2015 to update the original tree survey data used for our original AIA report dated March 2014. The revised details on the trees are found in the tree schedule 140323-PD-20 at Appendix B of this report.

3.2 During this visit it was possible to access the trees within the gardens of properties 44 and 48 Avenue Road, to accurately measure their dimensions and to inform the constraints of these trees in respect of the proposal. The trees, their crowns and root protection area dimensions are shown on drawing 140323-P-20 at Appendix A of this report.

Description of the site and local area

3.3 The site consists of a four storey residential dwelling including a part basement, with a car lift to the front and a summer house located within the rear garden. The building is in keeping with the character of the area which is characterised by large detached family dwellings and is situated within the Elsworthy Conservation Area. The local area is well treed with mature specimens lining the roads and located within private gardens, see aerial photo 1 below. The property is located within Avenue Road opposite the junction with Norfolk Road.

3.4 The site has a formally landscaped garden to the rear, containing a large lawned area with an architectural pool house. Raised planters frame the view of the garden from the house and these are planted with a variety of small ornamental trees and shrubs.

3.5 The front garden consists mainly of modular paving with an evergreen hedge planted within raised planting beds and planters. Vehicle access to the site is from Avenue Road, see photo 2 below.

3.6 Further afield, Swiss Cottage tube station is located approximately 1,5km to the northwest with Primrose Hill located less than 0.5km to the northeast.

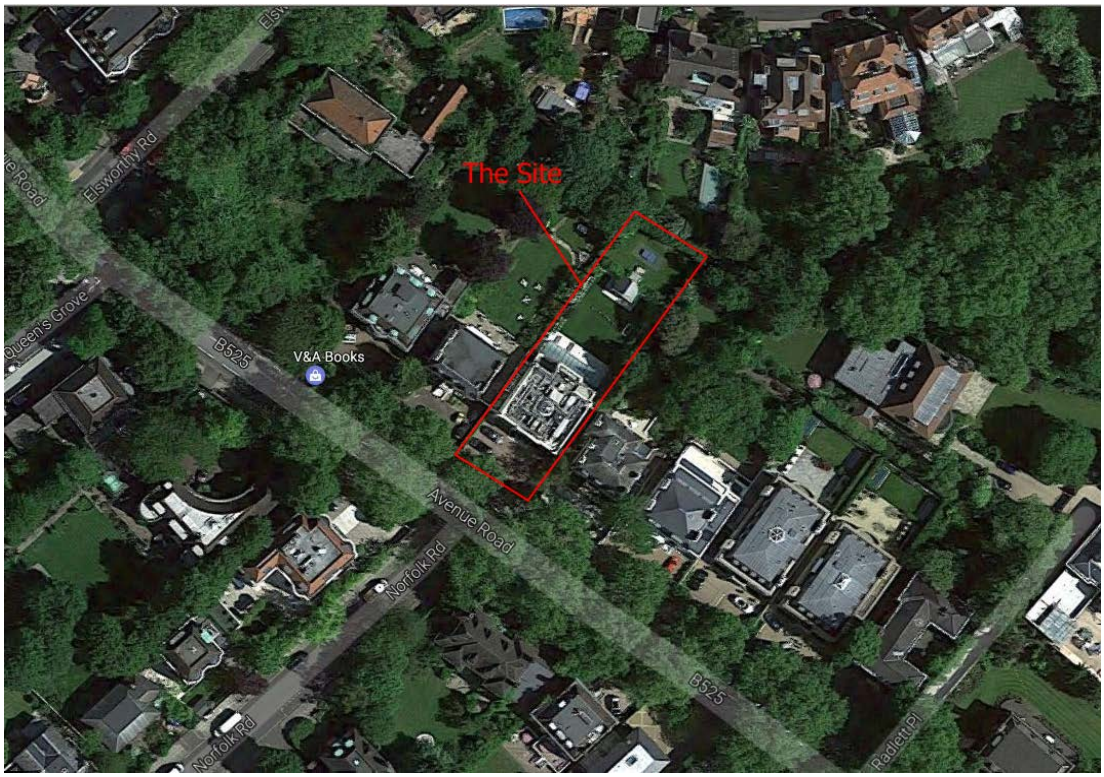


Photo 1 (Google) Aerial photo of the site including approximate site application boundary

3.7 The site is bordered by other residential properties located within Avenue Road to the northwest and southeast and Elwsworthy Road to the northeast. The front boundary to the southeast is bordered by Avenue Road.

Photo 2 (RM 1.12.15) View of the site, aspect looking north

Trees in the local area

3.8 There is a high density of trees within the Avenue Road which consists predominately of London plane, the majority of which are mature and appear to have been originally maintained as high pollards however more recently the crowns have regrown and now provide a leafy aspect to the street scene (see photo 3 below).

Photo 3 (Google Street View 6.15) View of street trees in Avenue Road, aspect looking northwest

3.9 Trees within the private front gardens contain a variety of different species including; yew, lime, Lawson cypress, silver birch, eucalyptus and Chusan palm. Several mature broadleaf trees are located within the rear gardens of neighbouring properties including sycamore, oak and Leyland cypress.

3.10 No significant trees are located within the site, trees within the rear garden consists mainly of ten young Italian cypress trees planted to the east and west of the main lawn, see photo 4 below. The most significant trees are located off-site and include a sycamore (T3), holm oak (T5) and a Caucasian maple (T6), due to their landscape contribution these trees are assessed as being of moderate quality and value.

Photo 4 (RM 2.12.15) View of rear garden, aspect looking north from the terrace area

Legal status of trees

3.11 The site is within the Elsworthy Conservation Area. We have not carried out any investigations as to whether the site or adjacent properties contain any trees protected by tree preservation orders (TPO), and therefore any works to trees beyond that agreed by a planning consent should not be carried out until appropriate checks with the local authority have been made.

Soil conditions

3.12 Soil conditions will have a significant effect upon tree growth and will influence:

- The species that will grow successfully.
- Rooting depths for different species.
- The available soil volume that can be used by roots and therefore the likely tolerance of trees and other vegetation to soil disturbance

3.13 The British Geological Survey information for the site indicates that the bedrock geology is London clay formation consisting of clay, silt and sand.

3.14 Soils of this type are suitable for the growth of a number of tree species but may be prone to volumetric change due to the clay content and therefore consideration needs to be given to foundation design where structures are to be constructed close to trees and vegetation.

3.15 A site investigation report by Concept Site Investigations dated August 2011, was submitted to inform the previous planning application, and includes undertaking three cable percussion boreholes on the site. Boreholes 2 (BH2) and 3 (BH3) are relevant to the location of the basement in the rear garden. These are taken to depths of 25m.

3.16 The findings of BH2 show made ground at up to a depth of 0.95m, at 0.95m to 1.3m the soil is clay, and from 1.3m to 8m the soil is London Clay Formation. Turf is growing on a depth of 0.28m of sandy clay soil and pea shingle.

3.17 The findings of BH3 show made ground to a depth of 0.47m, from 0.47m to 15m the soil is London Clay Formation. Turf is growing on a depth of 0.36m of sandy clay soil. For locations of boreholes please refer to the Borehole Location Plan at appendix F of this report.

3.18 Given the high clay content of the soil the free flow of subterranean water across the site is likely to be very slow due to the low permeability of this type of soil.

3.19 An indication of what tree species will grow well on this type of soil can be taken from those tree species growing well on the site or the surrounding area, including oak, cherry, birch, sycamore and London plane and many more (refer to the species within the tree schedule at Appendix B).

Policy context

3.20 Planning policy at national level is set out in the government's National Planning Policy Framework (NPPF).

3.21 The NPPF sets out overarching planning policy and at its core is a presumption in favour of sustainable development. Sustainable development is defined in the NPPF as having economic, social and environmental strands that are interdependent and in these areas planning should meet the needs of the present without compromising the ability of future generations to meet their own needs.

3.22 The NPPF states that planning should be “not only about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives.” And should “always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings;” Also that planning should contribute to conserving and enhancing the natural environment and reducing pollution.”

3.23 The NPPF identifies thirteen aspects contributing to the delivery of sustainable development, including:

- establishing a strong sense of place;
- responding to local character and history; and
- providing developments that are visually attractive as a result of good architecture and appropriate landscaping

3.24 Paragraph 61 of the NPPF states “planning policies and decisions should address the connections between people and places and the integration of new development into the natural, built and historic environment.”

3.25 The NPPF states that “planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland. Unless the need for, and benefits of, the development in that location clearly outweigh the loss”.

Local Development Framework

3.26 The site is located within the London Borough of Camden. Camden’s Development Policies were adopted on 8th November 2010, these expand further on the existing relevant Core Strategy policies, the following planning development policies are relevant to this application.

3.27 **DP22: Promoting sustainable design and construction measures –** to minimise impact on trees, the extent of the basement outline intends to avoid significant incursion into the root protection areas of retained trees. Where an incursion does occur, specialised construction methods are provided to minimise the space needed to excavate within the rooting area of trees. The arboricultural assessment has anticipated that loss of any roots present in these areas can be adequately compensated for elsewhere within or near the site without affecting the ongoing health of these trees, and complies with BS5837 (2012) in respect of this issue.

3.28 **DP24: Securing high quality design, all development –** the existing trees and the impact of changes on the drainage and topography of the land have been assessed by the appropriate professionals to support the application. Retained trees can be adequately protected during the construction of the proposal, and new planting will mitigate for those trees to be removed.

3.29 **DP25: Conserving Camden's heritage to maintain the character of Camden's conservation areas –** the proposal ensures that trees of important public amenity value will be retained and protected, the impact on the character of the conservation area has therefore been properly considered; only those trees of low public amenity value will be lost temporarily, and replaced as soon as the development is complete.

3.30 **DP27: Basement and light wells –** important trees can be retained, and the proposal will not lead to flooding or ground instability.

Planning Policy Guidance

3.31 Camden planning guidance CPG4: Basement and Light wells amended in 2013, (and recently July 2015) is also of specific relevance to the proposal, and supports policies in the Local development framework. In respect of trees and landscape the following main issues relevant to the proposal are identified:

2.15: Sufficient margins should be left between site boundaries and any basement construction to enable natural processes to occur for vegetation to grow naturally, and wide enough to sustain the growth and mature development of the characteristic trees species and vegetation of the area…seeking to maintain their biodiversity function for flora and fauna.

2.16: It will be expected that a minimum of 1m of soil can be provided above basement development that extends beyond the footprint of the building to enable garden planting and to mitigate the effect on infiltration capacity.

4 TECHNICAL INFORMATION

Tree Data

4.1 The location of trees and groups of trees are shown on the tree survey drawing 140323-P-20 at Appendix A, this plan illustrates the location of trees and the extent of the spread of their crowns. Dimensions, comments and information for each tree is given in the tree schedule 140323-PD-20 at Appendix B.

4.2 A schedule of trees to be removed or pruned to facilitate the development or for arboricultural reasons is included at Appendix B reference 140323-PD-22.

Life Stage Analysis

4.3 Unlike age in numerical terms (years), this description is used to describe the physical form of a tree in relation to its typical life expectancy and varies between species; for example, an oak may have a young form after 20 years while a cherry tree will be middle-aged after 20 years and will have developed the appearance of a mature tree with a spreading rounded crown whilst the oak remains tall and slender with strong apical dominance.

4.4 Of the 22 separate survey entries, the majority (15) have been assessed as being young / semi-mature, the remaining entries (7) were in various stages of maturity. The remaining 5 entries have been categorised as being semi-mature, see pie chart (Figure 1) below for complete analysis.

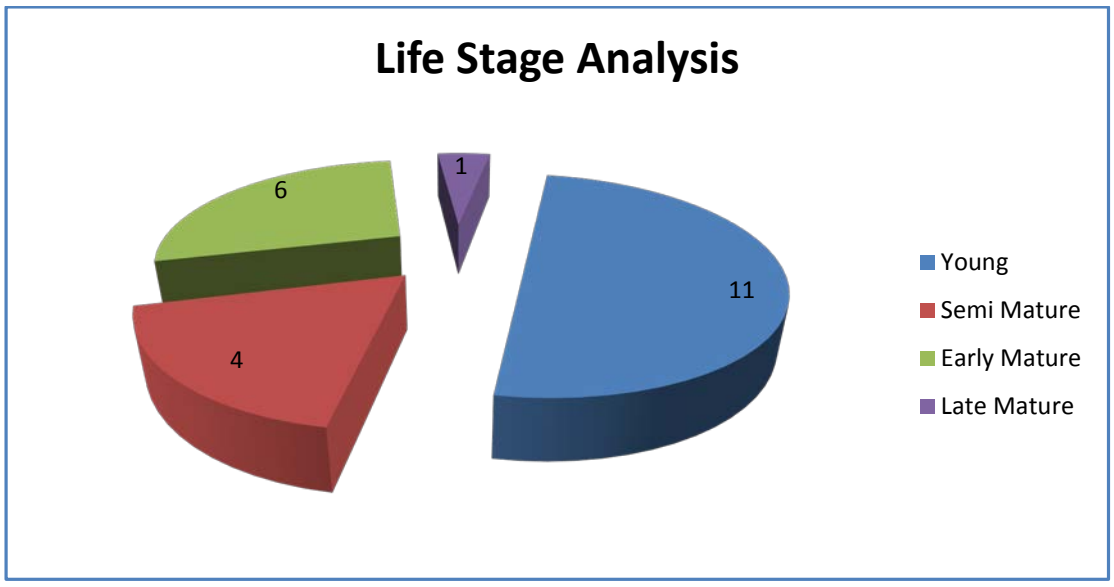


Figure 1 Analysis of Life Stage

BS5837 (2012) category breakdown

4.5 The survey identifies T12-T22 as ten individual young Italian cypress trees and one Japanese maple on the western and eastern boundaries of the rear garden of the site. The value of these trees in accordance with the recommendations of British Standard 5837(2012) are category C1, which are described in the recommendations as:

> *'Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories'*

4.6 Access to adjacent properties has allowed an accurate assessment of the crown spread, stem diameter and condition of off-site trees T2, T3, T5, T6, T7, T8, T9, T10, and T11.

4.7 The survey has assessed T2 as of poor structural and physiological condition, partially collapsed, with decay present in the base. It is probable that, given its poor condition, the rooting area of this tree is less than calculated, due to the physiological need to limit the extent of new shoot and root growth to conserve energy and sustain health

4.8 The trees surveyed were assessed as being of varying quality with the majority as low quality or unremarkable trees. Further details of the trees surveyed can be found in the schedule at Appendix B and the tree survey plan at Appendix A.

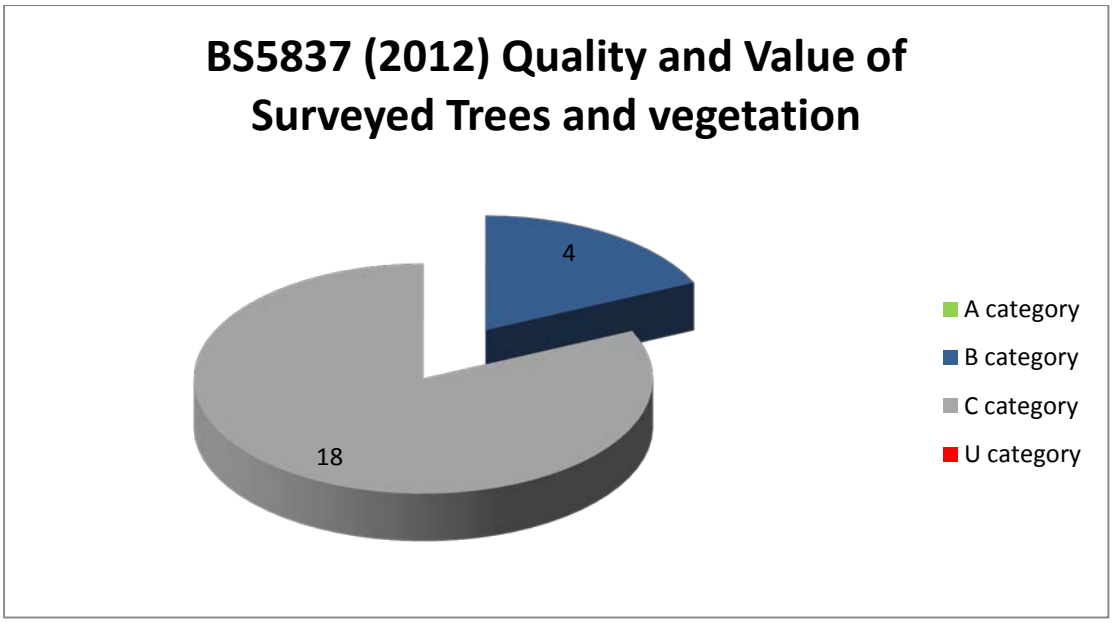


Figure 2 BS5837 retention categories for trees and trees in groups

Helliwell Evaluation of Amenity of Trees T12-T22

4.9 Further to the above assessment of tree quality which is based on Table 1 of BS5837: 2012 an additional amenity assessment of the trees T12-T22 has been undertaken using the peer reviewed methodology published by the Arboricultural Association 'Visual Amenity Value of Trees and Woodlands - The Helliwell System version 2008'. This system was first published in 1967 and adopted by the Arboricultural Association in 1984. It is accepted that the Helliwell System places a relatively small monetary value on trees that is not comparable to other recently available systems such as CAVAT (Capital Asset Valuation for Amenity Trees), however it is considered an appropriate tool to use in this case as it takes into account factors which will influence the importance of the amenity value of the trees to people living nearby. Such factors include the size of the trees, their safe useful life expectancy, their importance as an amenity, other tree cover in the area, their suitability to the location, and their form. The system has also been tested in the courts.

4.10 To help put the outcome of the amenity assessment of T12-T22 into context, a Helliwell evaluation is also included of T2, T3, T5, and T6, these are trees located within the neighbouring properties.

4.11 The Helliwell visual amenity value score for each of the individual trees T12-T22 to be removed is 1 for each tree after taking into account all relevant factors of the system. To put this score into context, using the same method the score for T2 is 6, T3 is 28, T5 is 24, and T6 is 20. The scores can be calculated to provide a monetary value by multiplying these scores by £30.84.

4.12 The calculations for the above scores is contained within Appendix D of this report and were calculated in December 2015.

5 ANALYSIS OF THE PROPOSAL IN RESPECT OF TREES

Proposed development and arboricultural impacts

5.1 The layout for the proposed development is shown on plan 140323-P-22 at Appendix A and is for the demolition and rebuild of the existing four storey main house and summer house with the existing front façade retained and the existing basement extended out beneath the whole house and garden with new light wells and roof-light in the gardens.

5.2 The trees to be removed as a result of the development will be eleven individual trees numbered T12-T22. These are all small trees, and at the time of the survey were measured as having heights of 7m or less. These trees have been assessed using Table 1 of BS5837:2012 as being of low quality and value.

A **High Value**	**B** **Moderate Value**	**C** **Low value**	**U** **Poor Value**
0	0	11	0

Figure 3 BS5837 (2012) categorisation and proposed tree loss

5.3 The Helliwell evaluation and comparison evaluation with other trees, is consistent with the BS 5837 (2012) assessment, since it demonstrates that essentially T12 – T22 make the lowest contribution to amenity of trees in this area of the site.

5.4 These trees can easily be replaced with newly planted trees, of the same size and life stage, in the same location as the existing trees. The result of development in visual terms would therefore be neutral as their screening value will be immediately reinstated on completion of development.

5.5 I have attached at Appendix E, a Tree Replacement Plan landscape plan which demonstrates a like for like replacement of the Italian cypress trees, Japanese maple and ornamental plants present. Although the position of the replacement summer house has altered slightly this will not have any impacts in respect of new planting. The landscape proposal provides a scheme for dealing with appropriate soil volumes to cater for the future growth of these trees in this location, post basement construction.

5.6 **Basement** - in respect of trees T5 and T6 the incursion of the basement into the root protection area is minimal. The largest incursion relates to T5, the total root protection area for this tree is calculated as 131m², the incursion equates to 6.3% of this total. Section 4.6 of BS5837 (2012) recommends that the available rooting conditions for a tree, and other factors such as its age, species and physiological condition (essentially its tolerance to root disturbance) should be considered prior to accepting any deviation from the calculated root protection area circle provided within recommendations. Given the relatively young age of this tree (Early-mature), its high tolerance to adapt to change, its relatively unimpeded and available rooting environment within the garden of 44 Avenue Road, I consider the small percentage of root loss proposed will be acceptable. The work operations in this area can be managed appropriately by following a method for pruning any tree roots that may be found to be present here prior to installation of the sheet piling for basement construction.

5.7 The use of sheet piling as retaining features for the walls of the basement will control and limit the extent of excavations needed beyond the basement outline and therefore risk of further potential root severance. This method is frequently used for excavation works close to trees to minimize potential root damage that may be caused during more conventional methods of excavations. Crowns of off-site trees do not overhang the line of the basement and will be unaffected by this proposed approach.

5.8 **Future growth of trees and light and shade –** the first floor rear extension extends further than the existing building foot print, and although the proposed lounge (formal living area on the ground floor plan) will be subject to some partial shading from off-site trees (T7 and T8) this will not be unreasonable. The front elevation (south-east section) will be as per existing due to the retention of the front façade and although two off-site birch trees (T9 and T10) are located nearby the building elevation closest to these trees does not contain windows on that aspect.

5.9 To ensure an acceptable level of clearance between off-site tree crowns and the new building some ongoing pruning of adjacent trees will be necessary however this would also be the case regardless of the development proposals. These works will be minimal and are consistent with current trees located to both the existing building and those located within the local area.

5.10 The Building Research Establishment (BRE) has published guidance on daylight and sunlight shading and has suggested that “Tree locations are also important; deciduous species are best because they are leafless when solar gains are most valuable, while providing some shade in summer.”

5.11 [BR 380 - Environmental site layout planning: solar access, microclimate and passive cooling in urban areas. 2000. Page 69]

5.12 **New hard-surfacing** – existing boundary walls / planters within the front garden area is likely to be preventing some root ingress within the site furthermore, due to the minimal incursion within the RPA of T11, the impact of replacement surfacing will be minimal and can be installed using conventional methods.

5.13 **Demolition of the existing building –** where this is within close proximity to off-site trees this will need to be completed in a controlled method ensuring that the building is pulled back away from overhanging tree crowns and will need to be completed under the supervision of a banksman.

5.14 **Demolition of existing hard landscaping –** where this is within the RPAs of off-site trees (T5-T8) this will need to be undertaken under arboricultural supervision and follow special methods. To provide ground protection to off-site trees located to the rear of the current building, the existing raised planter / container will be retained throughout the demolition phase. Once this has been removed temporary ground protection will need to be installed. This area has been highlighted as purple on the Tree Protection Plan at Appendix A of this report.

5.15 **Installation of scaffolding –** it is assumed that scaffolding will be required both around the retained façade as well as the elevations of the new building. To provide working space for this the crowns of several off-site trees located off the eastern boundary will need to be trimmed back. These works will be minimal and will not have a significant impact on the amenity or condition of these trees.

5.16 **Basement** – where adjacent to retained trees and to minimize potential root damage, it will be necessary to limit any working space beyond the line of the proposed western external wall of the building. This can be achieved by using methods of excavation such as contiguous or sheet piling as appropriate. Provided this principle of construction is followed and working operations take place outside the root protection areas of T1 and T3 the potential risk of damage to the roots can be minimised.

5.17 **Demolition / Construction Operations -** all plant, equipment and materials will be confined to the areas outside the Tree Protection Zone (TPZ) as shown highlighted on drawings 140323-P-22 at Appendix A.

5.18 Site access will utilise the existing vehicle access into the site. Due to the retention of the front façade it is assumed that construction traffic will enter the rear of the site via the basement excavation which will extend from the site frontage (under the front façade) and is shown on the Tree Protection Plan at Appendix A.

5.19 **Drainage and services –** feedback for the previous scheme (similar to this one) in respect of drainage changes have been professionally assessed by RKD Consultant Ltd which concluded that changes in drainage will be insignificant or improved as a result of the proposals. Changes in respect of water availability for existing trees in the area will remain largely unaffected and there will be no adverse effects on them as result of this proposal.

5.20 In respect of retained trees, excavations for underground services and drainage will need to avoid the root protection areas of retained trees or where possible existing runs should be used. If avoidance of the root protection areas is not possible, then best practice guidance for the installation of these features will need to be followed. BS5837 (2012) recommends the National Joint Utilities Group Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees Volume 4, issue 2: NJUG, 2007 as a normative reference in these instances .

6 DISCUSSION

General Change

6.1 In visual terms, the impact of the proposed development from tree loss will be insignificant. Trees to be removed are small and are located to the rear of the existing property and are not visible from a public viewpoint. An assessment of the visual importance of trees to be removed has been completed using both the evaluation methods contained within BS5837 (2012) and Helliwell. Both methods confirm that these trees make a low amenity contribution.

6.2 New tree planting will replace trees proposed for removal therefore the proposals from a landscape perspective are neutral.

6.3 A landscape plan has been included at Appendix E, which although for a previous scheme, is unlikely to change in respect of new soft landscaping.

How do the changes relate to planning policy?

6.4 The current proposal complies with the London Borough of Camden planning policies, guidance and best practice in respect if trees. This report, and previous input, has confirmed that the current proposal has followed the expectations of these policies in respect of trees.

6.5 Detailed liaison with the structural engineer has ensured that an adequate depth of soil and rooting environment can be provided to support new tree and shrub planting.

6.6 The policy and supplementary guidance in respect of basement development requests a minimum depth of 1m of topsoil to be provided above basement areas that extend into gardens. The proposal provides granular fill above the basement to a depth of 800mm, incorporating a surface water drainage system, with top soil above to a further depth of 200mm in the lower garden area and 720mm in the upper garden area.

6.7 Although the depth of soil provided over the entire basement is not to the full depth, we are able to overcome this issue and enable the provision of adequate areas for new tree planting and low level shrub planting.

6.8 The backfill specification of topsoil to a depth of 720mm in the upper garden area is adequate to sustain the long term structural stability and nutrient requirements of future tree planting should they be planted above the basement in the upper garden area in the future. Provided the right species is chosen (appropriate to the soil type and growing conditions) any new tree will adapt to the growing conditions to exploit for their needs structurally and in terms of the availability of water and nutrients. The opportunity for the garden area to contribute to the character of the conservation area through future tree planting remains a viable option post construction of this proposal.

6.9 For the lower garden area, if there is a future desire to plant shrubs, the engineers are satisfied that shrub planting with soils at greater localised depths would not materially affect the storage capacity of the granular layer above the basement in this area.

6.10 The new trees proposed as replacement for T12-T21, will be Italian cypress trees, and for T22 a Japanese maple of the same size as those that currently exist. They will be planted in raised beds above the finished topsoil level of the garden and the planters are designed to allow for their trees roots to break out underneath the raised bed structure into the garden area beyond to provide ongoing growing conditions to sustain their future growth.

Long term impact of the basement on trees within and adjacent to the site

6.11 In terms of drainage changes in and around the area of the site as a result of the proposal the Basement Impact Assessment completed by RKD Consultant Ltd (ref-Rev05 02.07.2014) suggests the changes are not likely to materially change, it concludes:

8.2. Surface Water Drainage

The new proposals do not increase the impermeable areas of the Site at surface level from the existing situation and given the poor infiltration characteristics of the London Clay, total quantities of surface runoff are not expected to change materially and attenuation characteristics should be moderately improved with the use of granular fill above the basement roof.

7 CONCLUSIONS

Sustainability

7.1 The approach to trees and landscape on the site is sustainable; best practice guidance has been followed to identify the key trees for arboricultural and landscape value and trees to be removed are insignificant.

7.2 The new landscape proposals show replacement tree and shrub planting with specimens of similar height.

7.3 New sub-soil (and granular fill) is sufficient to support the new planting proposed which will ensure that from a tree and soft landscape perspective the proposals will be neutral.

7.4 The protection of retained trees on and off-site during the proposed development works can be achieved by continuing to follow the recommendations in BS5837:2012 and by compliance with suitably drafted planning conditions which can require an arboricultural method statement including on site supervision of key activities and tree protection during demolition and construction works on site.

8 RECOMMENDATIONS

The use of planning conditions to safeguard trees

8.1 Section 197 of the Town and Country Planning Act 1990 places a duty on the Local Planning Authority to ensure that planning permissions are granted making adequate provision for the preservation and planting of trees by the imposition of conditions.

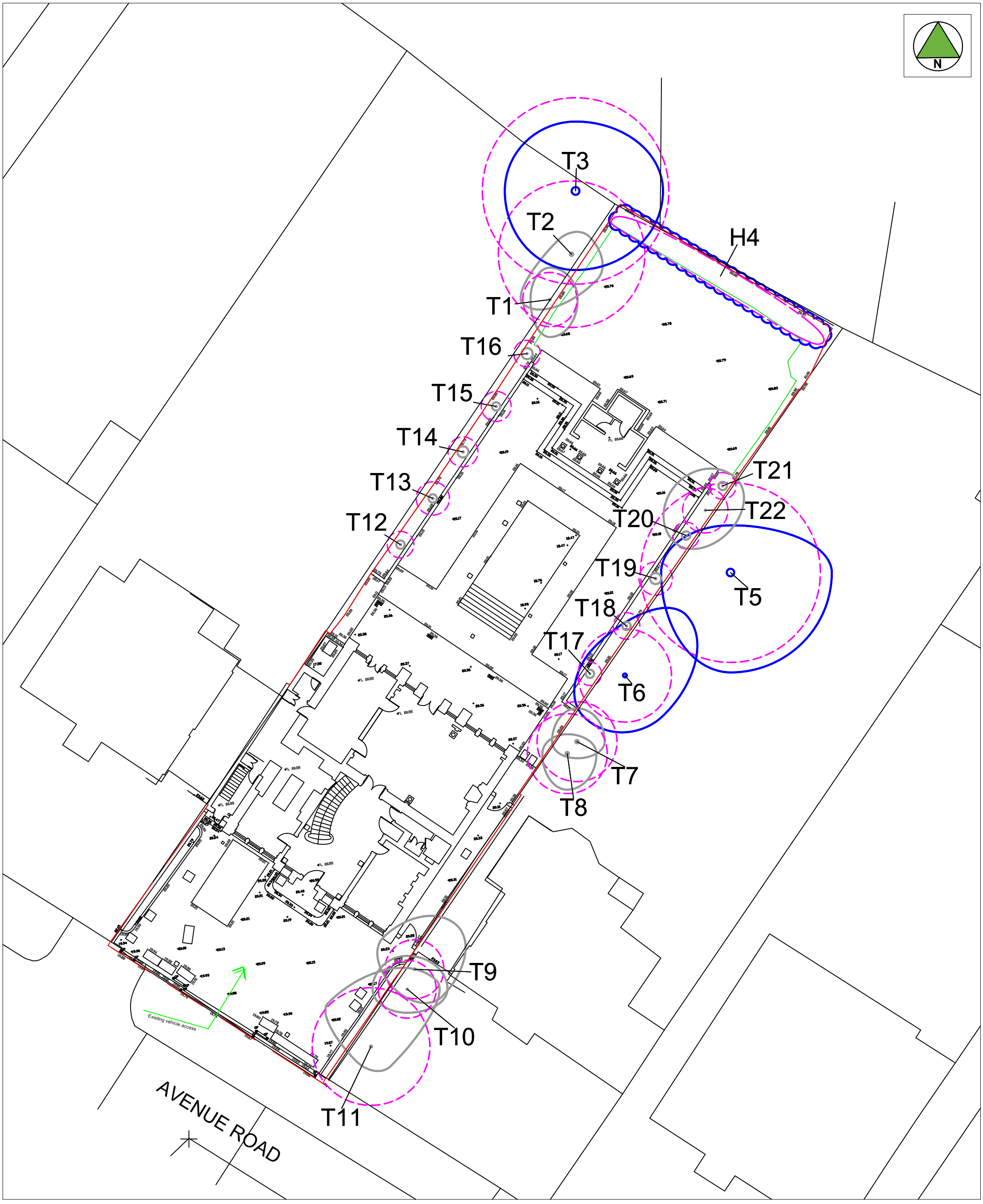
8.2 Appropriately worded planning conditions can ensure that trees are adequately protected during construction work as well as specify a requirement for a landscape scheme to mitigate tree loss.

APPENDIX A - PLANS

Tree Survey 140323-P-20

Proposed Layout and Tree removals 140323-P-21

Tree Protection Plan 140323-P-22



BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality and value: in such a condition as to be able to make substantial contribution (a minimum of 40 years is suggested)

Category B
Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20years is suggested)

Category C
Trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10years is suggested), or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

Site application boundary.

INVESTORS IN PEOPLE

The original of this drawing was produced in colour -a monochrome copy should not be relied upon.

Title
Tree Survey

Client
Brightwood Properties Limited

Project
46 Avenue Road, St Johns Wood, London, NW8 6HS

Date	Drawn by	Cheked by
December 2015	DA	-
Drawing No	Rev	Scale
140323-P-10	-	1:250@A3

DO NOT SCALE Use only figured dimensions

REVISIONS		
Base Drawing		
02/12/15	-	L4766-G

0 1m 5m 10m

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Harlow
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N

T3
T2
H4
T1
T16
T15
NEW SUMMERHOUSE TO REPLACE EXISTING WITH STAIRCASE LEADING TO BASEMENT
T14
T21
T13
T22
T12
T20
T19
T5
T18
T17
T6
T7
T8
T9
T10
T11
Existing vehicle access
AVENUE ROAD

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality and value: in such a condition as to be able to make substantial contribution (a minimum of 40 years is suggested)

Category B
Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20years is suggested)

Category C
Trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10years is suggested), or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

Site application boundary.

Trees to be removed to facilitate development shown shaded grey.

Proposed basement layout

Existing facade retained.

Proposed ground floor footprint.

Site application boundary.

INVESTORS IN PEOPLE

The original of this drawing was produced in colour -a monochrome copy should not be relied upon.

Title
Proposed Layout and Tree Removals

Client
Brightwood Properties Limited

Project
46 Avenue Road, St Johns Wood, London, NW8 6HS

Date	Drawn by	Cheked by
February 2017	AH	-
Drawing No	Rev	Scale
140323-P-21	-	1:250@A3

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-	-	-

REVISIONS

Base Drawing

02.02.17	-	FOR PROPOSED 020217 2010

0 1m 5m 10m

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Harlow
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ARBORICULTURAL METHOD STATEMENT

BRITISH STANDARD 5837(2012)

This method statement is in accordance with British Standard 5837: Trees in relation to design, demolition and construction - Recommendations (2012) which provides a methodology for the assessment and protection of trees and other significant vegetation on development sites.

TREE SURGERY WORKS

Only tree works specified within this document may be carried out. Any uncertainty regarding trees to be pruned will be immediately confirmed with the arboricultural consultant and local authority tree officer.
All tree works will be carried out in accordance with the recommendations given in the current BS 3998 (2010).
All tree works should be carried out in accordance with the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010.

SITE SUPERVISION

All key / critical activities that will affect trees during construction will be inspected and monitored by the approved arboricultural consultant and reports issued to the client and local authority.

Supervision visits will occur as follows:

- Inspection of tree works, tree protection prior to demolition and construction works
- Monthly visits to inspect tree protection measures
- During works that may affect retained trees

PROTECTIVE FENCING

No materials or equipment other than those required to erect protective fencing, will be delivered to the site before the fencing is installed. The position of protective fencing for demolition is shown on this drawing.
Protective fencing will be constructed of robust barriers fit for the purpose of excluding demolition and construction traffic. Signs will be fixed to every third panel stating **'Tree Protection Area Keep Out - Any Incursion into the protected area must be with the agreement of the local authority or arboricultural consultant'.**
The main contractor will inform the local authority officer and the arboricultural consultant that tree protection is in place before demolition or site clearance works commence.
No alteration, removal or repositioning of the tree protection for demolition will take place during the demolition phase without the prior consent of the arboricultural consultant.

SERVICES AND DRAINAGE

Methods of working for installation of the drainage runs or services will follow the guidance within Table 3 of BS 5837 (2012), or National Joint Utilities Group (NJUG) *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*. Volume 4, Issue 2, London NJUG 2007.
No works will occur within the tree protection zone without prior agreement from the arboricultural consultant. No machinery will be permitted within the TPZ at any time.

GENERAL PROTECTION METHODS

No fires will be permitted within 20m of the crown of any tree.

No changes in soil levels will take place within the tree protection zones without prior written consent of the local authority.
No materials, vehicles, plant or personnel will be permitted into the tree protection zones at any time without the prior consent of the arboricultural consultant.

Any liquid materials spilled on site will be immediately cleared up and removed from the site. If liquid fuel or cement products are spilled within 2m of the tree protection zone, the contractor will report the incident to the arboricultural consultant immediately.
The contractor will report any damage to trees or shrubs, whether caused by construction activities or from any other cause, to the arboricultural consultant immediately.

NO-DIG CONSTRUCTION AREAS

Areas requiring no-dig methods of construction are indicated on this drawing. No-dig will involve either excavating existing hard surfacing down to sub base and building up, or laying materials to create new hard surfacing onto existing ground levels. No scraping or reducing of existing soft ground levels in the areas indicated on this plan will be undertaken, and all construction in these areas will avoid the use of machinery.

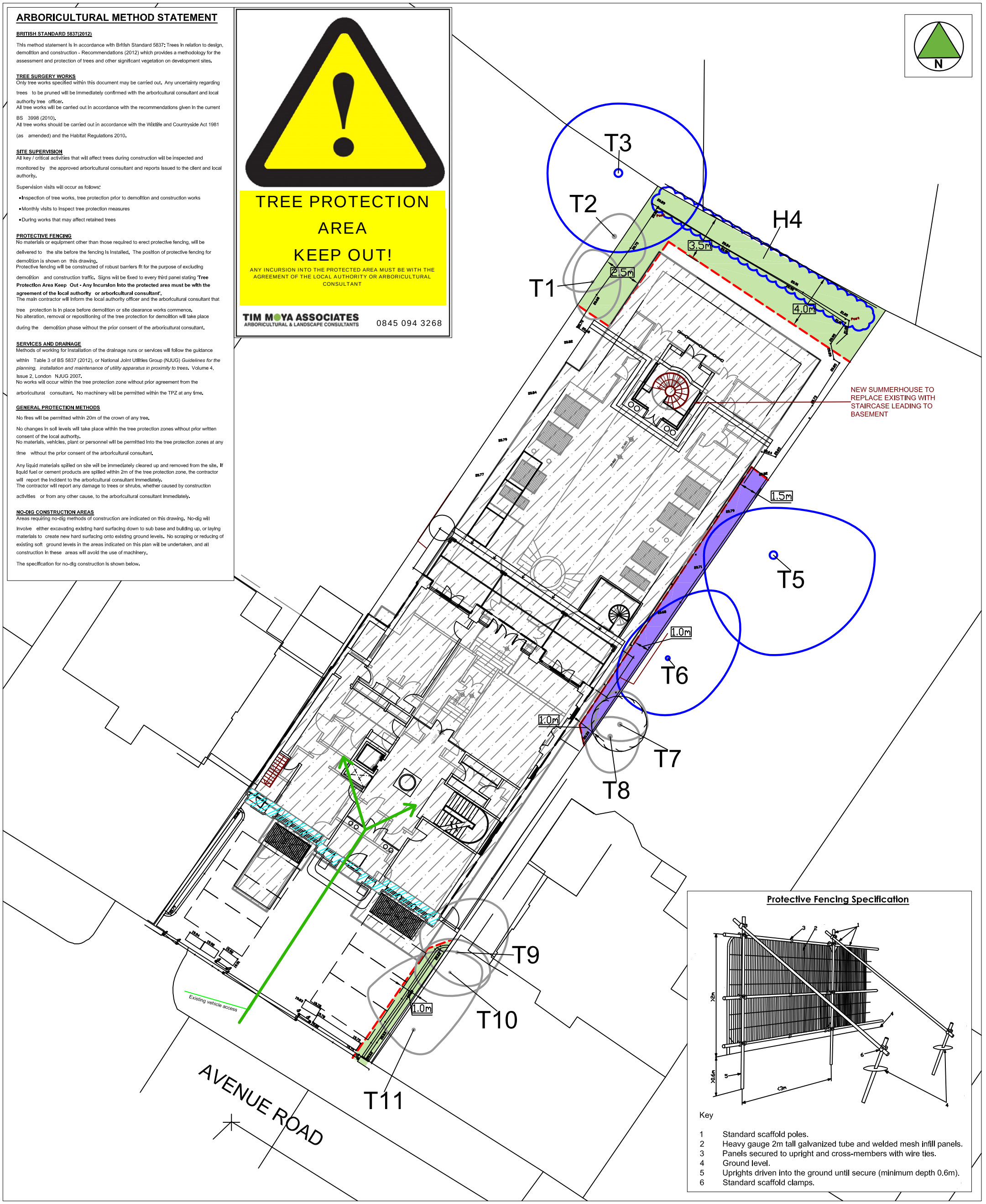
The specification for no-dig construction is shown below.

TREE PROTECTION AREA

KEEP OUT!

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE AGREEMENT OF THE LOCAL AUTHORITY OR ARBORICULTURAL CONSULTANT

TIM MOYA ASSOCIATES
ARBORICULTURAL & LANDSCAPE CONSULTANTS
0845 094 3268



Protective Fencing Specification

Key

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

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality and value: in such a condition as to be able to make substantial contribution (a minimum of 40 years is suggested)

Category B
Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20years is suggested)

Category C
Trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10years is suggested), or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

INVESTORS IN PEOPLE

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

Trees to be removed to facilitate development shown shaded grey.

Proposed ground floor footprint.

Proposed basement layout

Indicative construction access to pass under retained facade

Existing facade retained.

Site application boundary.

Position of protective fencing and tree protection zones.

Landscape feature to be removed using special methods. Temporary ground protection required once removed.

Title
Tree Protection Plan

Client
Brightwood Properties Limited

Project
46 Avenue Road, St Johns Wood, London, NW8 6HS

Date	Drawn by	Cheked by
February 2017	MD	-
Drawing No	Rev	Scale
140323-P-22	-	1:250@A3

DO NOT SCALE Use only figured dimensions

The original of this drawing was produced in colour -a monochrome copy should not be relied upon.

-	-	-

REVISIONS

Base Drawing
02/02/17 - FOM PROPOSED 020217 2010

0 1m 5m 10m

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APPENDIX B - SCHEDULES

Tree Schedule 140323-PD-20

Tree Works Schedule 140323-PD-22

140323-PD-20 Tree schedule (BS5837)

TIM MOYA ASSOCIATES

46 Avenue Road, St Johns Wood, London, NW8 6HS

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T1	1	Acer pseudoplatanus (Sycamore)	7.0	11 AVE	2	2.3		2.0		2.7		1.4		2.5		Young	Structural condition Fair. Physiological condition Good. Stems - Co-dominant. Location - Approximate as tree not plotted on topographical survey. Stem touching boundary wall Two stems from 0.5 metres above ground level	02/12/2015	12.0	2.0	10-20	C2
Tree T2	1	Morus nigra (Black Mulberry)	4.0	24 AVE	3		1.8		2.6		5.0		1.4	1.0		Late Mature	Structural condition Poor. Physiological condition Poor. Arboricultural work - Recent. Decay / structural defect - Base. Decay / structural defect - Extensive. Fallen tree / trees - Partial collapse. Located on adjacent property Three stems from ground level Major lean to east Crown pruned back to boundary of No.46	02/12/2015	87.6	5.3	10-20	C1
Tree T3	1	Acer pseudoplatanus (Sycamore)	14.5	56	1	5.0		6.3		5.7		5.1		3.0		Early Mature	Structural condition Fair. Physiological condition Good. Epicormic growth - Bole / principal stems. Ivy or climbing plant. Located on adjacent property	02/12/2015	141.9	6.7	20-40	B2
Hedge H4	1	x Cupressocyparis leylandii (Leyland Cypress)	5.0	15	1									0.0		Early Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained. Dimensions - Height and stem diameter are average for group. Hedge along rear boundary Tree numbers not approximated	02/12/2015	10.2	1.8	20-40	B2
Tree T5	1	Quercus ilex (Holm Oak)	11.0	54	1	3.4		7.3		7.2		5.0		4.0		Early Mature	Structural condition Fair. Physiological condition Good. Fork - Weak with included bark. Leaning trunk - Minor. Twin stemmed from 1.8 metres above ground level Located on adjacent property Biased crown and leaning stem eastwards Stem close to boundary wall	02/12/2015	131.9	6.5	40+	B2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Generated By MyTREES tree management software

Printed on 08/02/17 (BS5837 2012 schedule)

44 & 46 Avenue Road, St Johns Wood, London, NW8 6HS

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T6		Acer cappadocicum (Caucasian Maple)	11.0	28	1		6.2		4.0		4.2		3.0	3.0		Early Mature	Structural condition Fair. Physiological condition Good. Fork - Weak with included bark. Co-dominant stem from 3.5 metres above ground level Located on adjacent property	02/12/2015	35.5	3.4	20-40	B1
Tree T7	1	Chamaecyparis lawsoniana (Lawson Cypress)	14.5	24	1	2.4		2.0		1.2		1.8		2.0		Semi Mature	Structural condition Good. Physiological condition Good. Located on adjacent property	02/12/2015	26.1	2.9	10-20	C1
Tree T8	1	Chamaecyparis lawsoniana (Lawson Cypress)	14.5	24	1	1.4		2.1		2.6		1.8		2.0		Semi Mature	Structural condition Good. Physiological condition Good. Located on adjacent property	02/12/2015	26.1	2.9	10-20	C1
Tree T9	1	Betula pendula (Silver Birch)	12.0	13 AVE	2		4.4		2.8		2.0		3.2	4.0		Semi Mature	Structural condition Fair. Physiological condition Fair. Crown conflict - Structure / boundary / wire / tree. Root environment - Restricted. Located on adjacent property Two stems from ground level Crown touching adjacent buildings	02/12/2015	14.2	2.1	10-20	C2
Tree T10	1	Betula pendula (Silver Birch)	12.0	9 AVE	3	2.4		2.9		1.7		2.5		3.0		Semi Mature	Structural condition Fair. Physiological condition Fair. Crown conflict - Structure / boundary / wire / tree. Root environment - Restricted. Located on adjacent property Three stems from ground level Crown touching adjacent buildings	02/12/2015	13.7	2.1	10-20	C2
Tree T11	1	Eucalyptus sp. (Eucalyptus Tree)	12.0	15 AVE	2		6.7		2.0		1.5		4.4	4.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Historic. Root environment - Restricted. Located on adjacent property Two stems from 1 metre above ground level Minor stem lean northwest	02/12/2015	56.5	4.2	10-20	C2
Tree T12	1	Cupressus sempervirens (Italian Cypress)	6.0	8	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	2.9	1.0	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Generated By MyTREES tree management software

Printed on 08/02/17 (BS5837 2012 schedule)

44 & 46 Avenue Road, St Johns Wood, London, NW8 6HS

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T13	1	Cupressus sempervirens (Italian Cypress)	6.5	10	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	4.5	1.2	20-40	C1
Tree T14	1	Cupressus sempervirens (Italian Cypress)	7.0	9	1	0.4		0.4		0.4		0.4		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	3.7	1.1	20-40	C1
Tree T15	1	Cupressus sempervirens (Italian Cypress)	6.0	9	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	3.7	1.1	20-40	C1
Tree T16	1	Cupressus sempervirens (Italian Cypress)	7.0	8	1	0.4		0.4		0.4		0.4		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	2.9	1.0	20-40	C1
Tree T17	1	Cupressus sempervirens (Italian Cypress)	4.5	7	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	2.2	0.8	20-40	C1
Tree T18	1	Cupressus sempervirens (Italian Cypress)	5.5	8	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	2.9	1.0	20-40	C1
Tree T19	1	Cupressus sempervirens (Italian Cypress)	5.5	10	1	0.4		0.4		0.4		0.4		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	4.5	1.2	20-40	C1
Tree T20	1	Cupressus sempervirens (Italian Cypress)	5.0	8	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Fair. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed Leaning into neighbouring T5	02/12/2015	2.9	1.0	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Generated By MyTREES tree management software

Printed on 08/02/17 (BS5837 2012 schedule)

44 & 46 Avenue Road, St Johns Wood, London, NW8 6HS

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T21		Cupressus sempervirens (Italian Cypress)	6.0	8	1	0.3		0.3		0.3		0.3		0.0		Young	Structural condition Good. Physiological condition Good. Staked tree / trees. Young planted tree / trees. Newly planted tree growing within raised bed	02/12/2015	2.9	1.0	20-40	C1
Tree T22	1	Acer palmatum cv. (Smooth Japanese Maple cv.)	6.0	8 AVE	2		3.2		2.3		3.2		2.8	2.0		Early Mature	Structural condition Good. Physiological condition Good. Tree growing within raised bed Two stems from 1 metre above ground level Low branching	02/12/2015	8.4	1.6	10-20	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Generated By MyTREES tree management software

Printed on 08/02/17 (BS5837 2012 schedule)

Table 1 of BS5837 (2012) **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see note)				
Category U 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, 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 health and/or safety 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 it might be desirable to preserve; see 4.5.7			**RED**
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Tree 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 arboricutural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	**GREEN**
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 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 value.	**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 value.	**GREY**

140323-PD-22 - Planning Tree Works Schedule

46 Avenue Road, St Johns Wood, London, NW8 6HS

ID	No. / Species	BS5837 Category	Recommended works	Status
T7	1 *Chamaecyparis lawsoniana* *Lawson Cypress*	C1	Reduce crown by - Specified extent. Trim back overhanging crown to boundary line	Proposed
T8	1 *Chamaecyparis lawsoniana* *Lawson Cypress*	C1	Reduce crown by - Specified extent. Trim back overhanging crown to boundary line	Proposed
T9	1 *Betula pendula* *Silver Birch*	C2	Reduce crown by - Specified extent. Reduce crown overhanging site to provide 2m clearance back from existing building	Proposed
T10	1 *Betula pendula* *Silver Birch*	C2	Reduce crown by - Specified extent. Reduce crown overhanging site to provide 2m clearance back from existing building	Proposed
T12	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T13	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T14	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T15	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T16	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T17	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T18	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T19	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T20	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T21	1 *Cupressus sempervirens* *Italian Cypress*	C1	Fell - Ground level. Grind / grub out stump.	Proposed
T22	1 *Acer palmatum cv.* *Smooth Japanese Maple cv.*	C1	Fell - Ground level. Grind / grub out stump.	Proposed

APPENDIX C – GROUND PROTECTION

Photo 1: Ground-Guards, interconnected multi track heavy duty plastic panels. Please refer to www.ground-guards.co.uk/ for more details.

Photo 2: Ground-Guards, installed using a geotextile membrane, ground panels, 150mm deep woodchip and ground panels on top and held in place with edge rails. Please refer to www.ground-guards.co.uk/ for more details.

All ground protection must have a high load bearing capacity able to sustain heavy weighted machinery and agreed by the arboricultural consultant.

APPENDIX D – HELLIWELL CALCULATIONS

Helliwell Scoring Sheet **Rob Murison**
02/12/2015

Factor	Points									
	0	0.5	1	2	3	4	5	6	7	8
i. Size	Less than 2m²	2 - 5m²	5 - 10m²	10 - 20m²	20 - 30m²	30 - 50m²	50 - 100m²	100 - 150m²	150 - 200m²	over 200m²
ii. Duration	Less than 2 years		2 - 5 years	5 - 40 years	40 - 100 years	100+ years				
iii. Importance	None	Very little	Little	Some	Considerable	Great				
iv. Tree cover		Woodland	Many	Some	Few	None				
v. Suitability to setting	Not	Poor	Just	Fairly	Very	Particularly				
vi. Form		Poor	Average	Good						

Figure 6: Visual amenity valuation table, showing factors and scores available for individual trees from Helliwell, R (2008) *Guidance Note 4 Visual Amenity Valuation of Trees and Woodlands, The Helliwell System,* Arboricultural Association.

Helliwell Calculation for T12-22 (previously referred to as G1 in TMA AIA report 140323-PD-11)

Trees 12 - 22 **Species**: *Cupressus sempervirens and Acer palmatum*										
Factor	**Points**									
	0	0.5	1	2	3	4	5	6	7	8
Size – 4.8m^2 (6 x 0.8 – maximum dimensions)		X								
Duration – between 5 – 40 years				X						
Importance – some importance using table 5 (amenity to an individual person, family, or group of people)		X								
Tree Cover – many (more than 30% of visual area) > 10 trees in total			X							
Suitability – Fairly suitable				X						
Form – average / indifferent			X							
Total (0.5 x2 x0.5 x1 x2 x1) = Score of 1 Current value per unit = £30.84	Value per tree = **£30.84** Total value for eleven trees = **£339.24**									

Note: Table 5 of the system is used to score 'Importance'. Table 5 scoring is specific to the importance of position to individuals

Helliwell Scoring Sheet **Rob Murison**
02/12/2015

Tree 5 **Species***: Quercus ilex*										
Factor	**Points**									
	0	0.5	1	2	3	4	5	6	7	8
Size – 126m^2 (11.45 x 11 – maximum dimensions)								X		
Duration – 100+ years						X				
Importance – some importance using table 5 (amenity to an individual person, family, or group of people)		X								
Tree Cover – many (more than 30% of visual area) > 10 trees in total			X							
Suitability – Fairly suitable				X						
Form – average / indifferent			X							
Total (6 x4 x0.5 x1 x2 x1) = Score of 24 Current value per unit = £30.84	Value = **£740.16**									

Tree 6 **Species***: Acer cappadocium*										
Factor	**Points**									
	0	0.5	1	2	3	4	5	6	7	8
Size – 95.7m^2 (8.7 x 11 – maximum dimensions)							X			
Duration – 100+ years						X				
Importance – some importance using table 5 (amenity to an individual person, family, or group of people)		X								
Tree Cover – many (more than 30% of visual area) > 10 trees in total			X							
Suitability – Fairly suitable				X						
Form – average / indifferent			X							
Total (5 x4 x0.5 x1 x2 x1) = Score of 20 Current value per unit = £30.84	Value = **£616.80**									

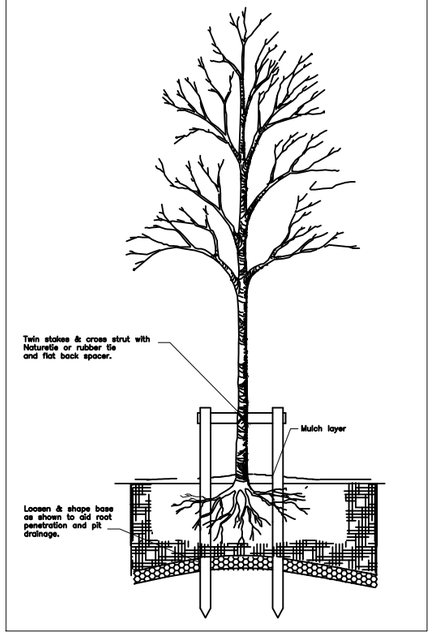
Tree 2 **Species***: Morus nigra*										
Factor	**Points**									
	0	0.5	1	2	3	4	5	6	7	8
Size – 21.6m^2 (5.4 x 4 - maximum dimensions)					X					
Duration – between 5 – 40 years				X						
Importance – some importance using table 5 (amenity to an individual person, family, or group of people)		X								
Tree Cover – many (more than 30% of visual area) > 10 trees in total			X							
Suitability – Fairly suitable				X						
Form – Poor		X								
Total (3 x2 x0.5 x1 x2 x1) = Score of 6 Current value per unit = £30.84	Value per tree = **£185.04**									

Helliwell Scoring Sheet **Rob Murison**
02/12/2015

Tree 3 **Species***:* *Acer pseudoplatanus*										
Factor	**Points**									
	0	0.5	1	2	3	4	5	6	7	8
Size – 160.23m^2 (11.05 x14.5 – maximum dimensions)									X	
Duration – 100+ years						X				
Importance – some importance using table 5 (amenity to an individual person, family, or group of people)		X								
Tree Cover – many (more than 30% of visual area) > 10 trees in total			X							
Suitability – Fairly suitable				X						
Form – average / indifferent			X							
Total (7 x4 x0.5 x1 x2 x1) = Score of 28 Current value per unit = £30.84	Value per tree = **£863.52**									

APPENDIX E – LANDSCAPE PROPOSAL

TMA Tree Replacement Plan 140323-L-01 Rev C



Refer to;

- British Standard 4043: Recommendations for Transplanting root balled trees (1989)
- British Standard 3936: Nursery stock (various parts) (1992)
- HTA National Plant Specification
- British Standard 5837: Trees in relation to design, demolition and construction - Recommendations (2012)
- British Standard 8545: Trees: from nursery to independence in the landscape- Recommendations (2014)

1.1 Planting will be carried out in the next available planting season. This usually runs from October to March but is dependent on weather conditions. Container grown plants can be planted outside of this time providing adequate aftercare is available.

1.2 Excavations for tree pits will be square in shape and at least twice the diameter of the root spread and 1.5 times the depth of the roots of the stock to be planted.

1.3 The bottom and sides of the pit will be broken up to allow deep root penetration and so as not to create a sump effect in the hole.

1.4 Following pit excavation, the plants will be carefully placed into the hole with all roots spread out and any damaged roots pruned back to sound growth (if bare root). Container grown plants will be carefully removed from the pots and the roots gently teased out by hand to ensure no circling roots remain.

1.5 The plant will be placed into the pit ensuring roots of adjacent trees are retained during the process.

1.6 The plant will be carefully held upright in the middle of the pit whilst the excavated soil is put back over the roots in thin layers.

1.7 The plant will be shaken gently up and down, so that when backfilling the soil gets between and around the roots. The soil will be firmed down.

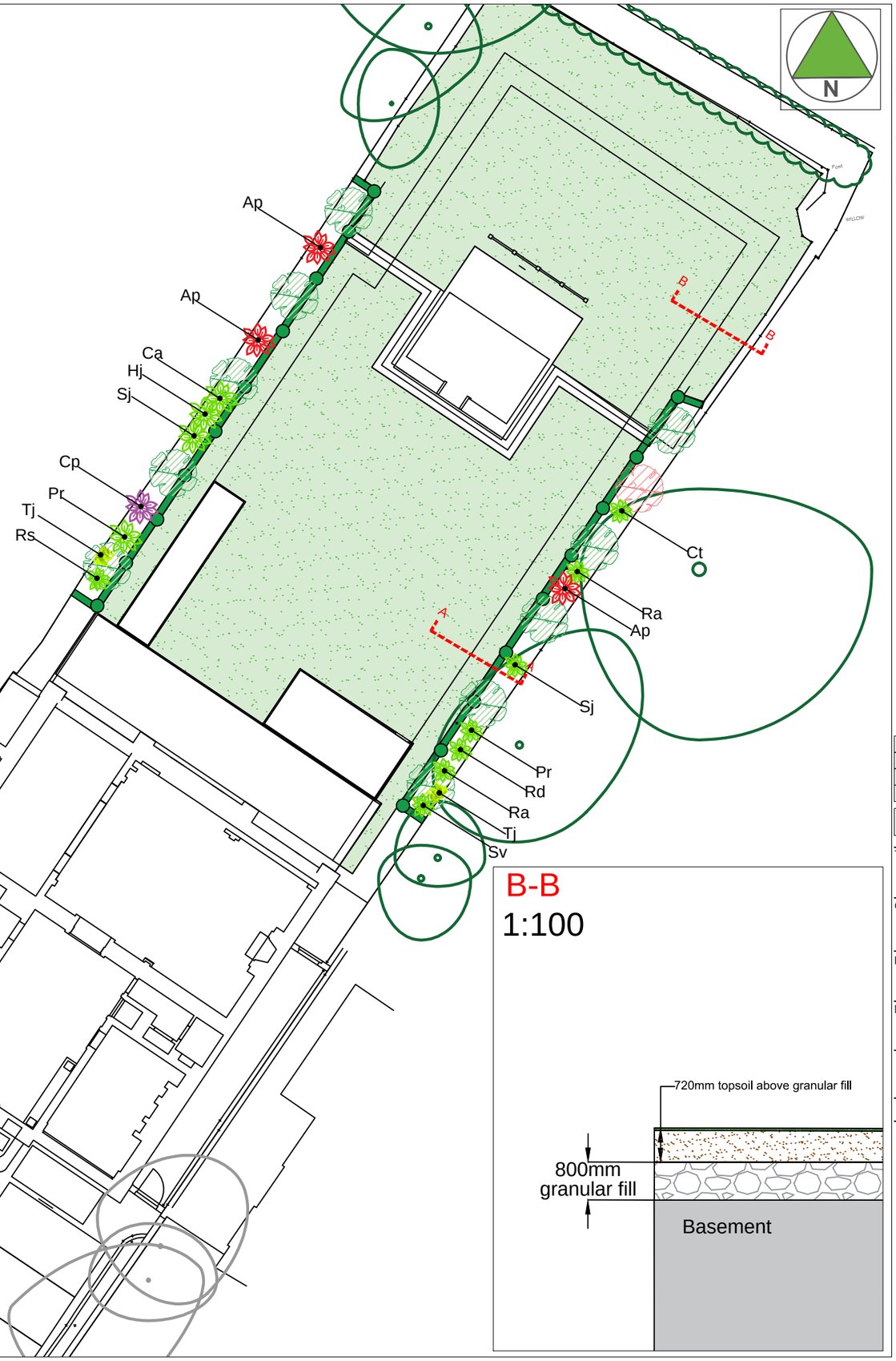
1.8 The plant will be planted ensuring that the nursery mark on the stem is level with the final level of the backfilled soil.

1.9 The final backfill layer will sit slightly proud of the existing surrounding soil levels.

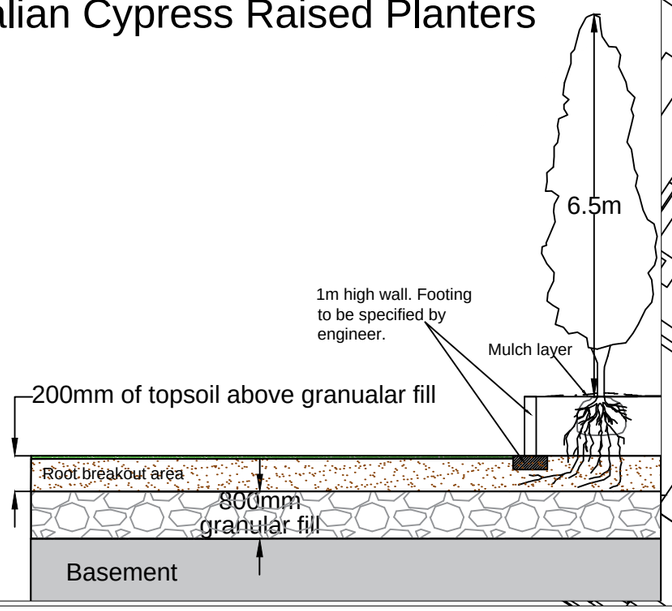
1.10 All trees planted will be staked using the method shown on the landscape master plan.

1.11 Following planting trees will be watered thoroughly (approximately 20litres per tree). Half should be applied via the irrigation tube and the remaining half should be over the surface of the pit area.

1.12 Following thorough watering, an area with a minimum radius of 500mm from the stem of the tree will be covered with 75mm of composted wood chip mulch.



A-A Italian Cypress Raised Planters
1:100



B-B
1:100

INVESTORS IN PEOPLE

CODE	TREE SPECIES	SIZE	QTY
	Cupressus sempervirens	240L 6-7m (height)	10
	Acer palmatum	100L 5m (height)	1

CODE	SHRUB/PLANT SPECIES	SIZE	QTY
Rs	Rosmarinus officinalis 'Erectus'	7L	1
Tj	Trachelospermum jasminoides	14L	2
Pr	Photinia 'Red Robin'	12L	2
Cp	Corylus maxima 'Purpurea'	10L	1
Sj	Spiraea japonica 'Firelight'	7L	2
Hj	Hamamelis x intermedia 'Jelena'	10L	1
Ca	Ceanothus 'Autumnal Blue'	10L	1
Ap	Acer palmatum 'Bloodgood'	15L	3
Sv	Syringa x vulgaris 'Lilac Wonder'	15L	1
Ra	Rhododendron 'Amity'	8L	2
Rd	Rhododendron 'Dreamland'	8L	1
Ct	Choisya ternata	7L	1

CODE	HEDGE SPECIES	SIZE	QTY
	Buxus sempervirens (balls)	50cm	19
	Buxus sempervirens	40-50cm (BR)	230 (5/lm)

430m² - 'GB Garden Lux Turf' provided by Topsoil and Turf

Existing trees and group to be retained

19.01.16	c	Added cross section B-B.
14.01.16	b	Added planting
08.01.16	a	Edited specification on cross section A-A.

REVISIONS

0 5m 10m

Title
Tree Replacement Plan

Client
Brightwood Properties Limited

Project
46 Avenue Road, St Johns Wood, London, NW8 6HS

Date	Drawn by
January 2016	AH

Drawing No	Rev	Scale
140323-L-01	c	1:250@A3

DO NOT SCALE Use only figured dimensions

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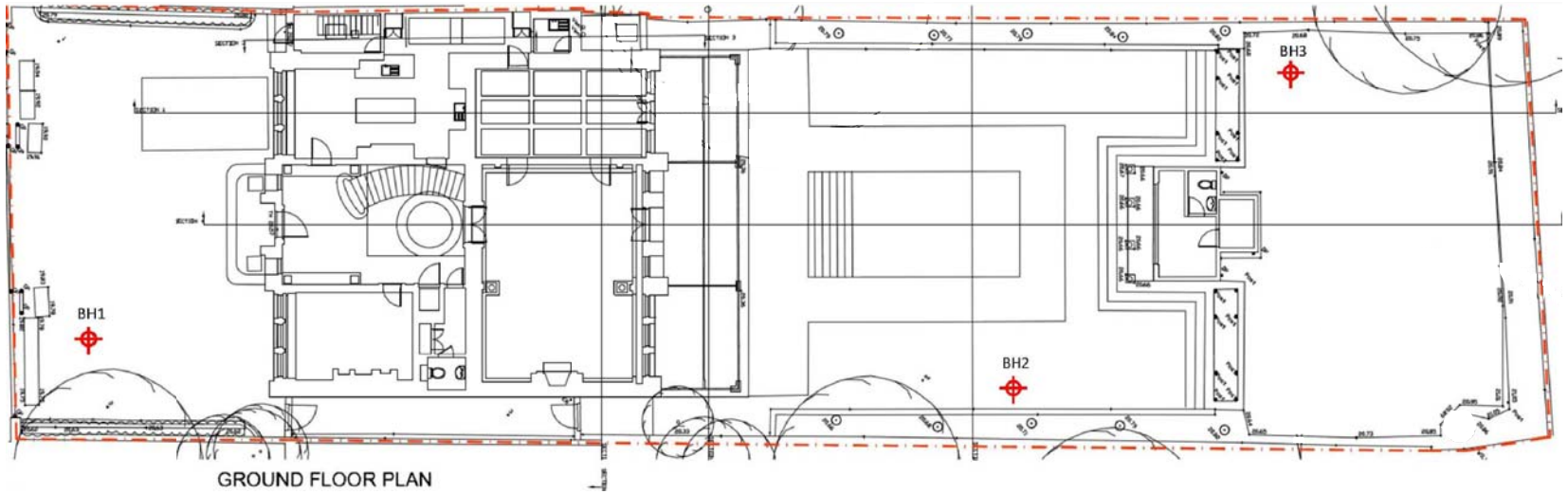
APPENDIX F - BOREHOLE LOCATIONS

Concept Site Investigations Location Plan – plan ref 11/2390

NOTES

1. This drawing should not be scaled.

BH	LEVEL (mOD)
BH01	43.20
BH02	43.40
BH03	44.00



GROUND FLOOR PLAN

KEY

⊕	BH - Cable Percussion Borehole

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS

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Client:	Brightwood Properties Limited
Project:	46 Avenue Road, London NW8 6HS
Title:	Exploratory Hole Location Plan
Dwg. No:	11/2390
Status:	Issue
Scale:	NTS

Drawn	Checked	Passed	Date
OS	MD	MD	July 2011