100 Haverstock Hill
London NW3 2BD

Phase II Arboricultural Impact Assessment (AIA)
(Ref. 101 845)

Date: 31/07/2023

Prepared by:
Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MRSB

Royal Society of Biology *Chartered Biologist*
International Society of Arboriculture *Certified Arborist*
LANTRA Approved *Professional Tree Inspector*
International Society of Arboriculture *Qualified Tree Risk Assessor*

No. 1 Landford Close, Rickmansworth, WD3 1 NG
Mobile: 078844 26671 Email: russell@arboleuro.co.uk www.arboleuro.co.uk

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For Local Planning Authorities that have previously seen our standard report format are directed to Sections 4-7 that contain the key relevant information for this planning application.

1.0 INSTRUCTIONS & TERMS OF REFERENCE

1.1 INSTRUCTIONS

Arbol Euro Consulting Ltd. is instructed to assess the on and off-site trees in regard to the proposed development. See section 6.1.2. We visited the site on 20/07/2023 to carry out the tree survey.

NB This report does not seek to authorise any tree works (see Section 4.1).

Development Control: Please be advised that this is a Development Control – and not a Building Control – focused document. In regard to the latter, this deals with foundation depth and design in relation to trees using NHBC/Zurich national guidance. For advice, consult with the local council Building Control Officer or an approved NHBC inspector in order to gain Full Plans Approval or a Completion Certificate. The latter are governed by the Building Act 1984 and Building Regulations 2010. As such the above Building Control issues are outside the remit of a Consulting Arborist.

Local Planning Authority Position: Our tree reporting is in-line with BS:5837 (2012) and our tree survey assessments are consistent with the LANTRA professional tree inspector criteria. However, please be advised* that this AIA does not necessarily provide any guarantees that the associated Local Planning Authority will agree with the opinion of the Consulting Arborist or grant planning consent based on the content and findings of this AIA report.

Report Validity: This AIA report is valid for a period of 16 months (from its date of publication), and is subject to any AIA tree management recommendations and their recommended timeframes. If this 16 month period elapses, a *verification* tree survey will be required to enable *re-validation* of this AIA report.

* As per our Terms & Conditions.

1.2 PHASE 1, 2 & 3: ARBORICULTURAL IMPLICATION ASSESSMENTS (AIA) IN CONTEXT

1.2.1 Phase 1 (AIA1). The initial stage for trees within the development process is a survey of those trees that should be retained and those that may/should be removed. Retention trees are allocated Root Protection Areas (RPAs) that are then detailed on a Tree Constraints Plan (TCP). The RPAs provide for sufficient rooting (soil) volume to ensure that trees are successfully retained during and after the completed development. The TCP represents Phase 1 of an Arboricultural Implications Assessment (AIA1). It indicates a notional development footprint for any given site but moreover, it ***may affect the value of land*** earmarked for development. The AIA1 is ***only*** a baseline survey. It is not intended to represent, in isolation, the supporting information for an LPA* application: to obtain full planning permission.

* Local Planning Authority

1.2.2 Phase 2 (AIA2). The next stage is for 'site layout master planners' to factor the tree constraints into draft layout proposals. This draft is then referred to the consulting Arborist for further implication assessment, to arrive at a 'best fit' scheme, which achieves site proposal viability whilst allowing for the retention of appropriate trees. This layout review represents Phase 2 of an Arboricultural Implications Assessment (AIA2). Once it has been agreed, the consulting Arborist can then prepare a supporting report to accompany the planning application. This report should demonstrate that the trees have been properly considered such that the site layout is defensible in arboricultural terms, both at the application stage and also, if necessary, at Appeal. As the proposal develops, the AIA2 also involves the consulting Arborist working as part of the development team to secure discharge of any initial (frequently pre-commencement) tree related LPA planning

conditions. These will need to be formally discharged to avoid any breach of Condition and/or enforcement action.

1.2.3 **Phase 3 (AIA3).** All the effort put into the pre-application phases (AIA12) to protect retention trees is likely to fail without effective site supervision. Arboricultural Implications Assessment (AIA3) covers the ***on-site project implementation***, including arranging (LPA) approved tree removal/ pruning, overseeing the installation of tree protection fencing, ground protection and any special engineering works through to periodic reporting on the retention of tree protection measures. Many if not all of the latter are usually specified as LPA planning conditions that need to be formally discharged. All personnel associated with the construction process must be familiar with the specified Tree Protection Plans (TPP) and Arboricultural Method Statements (AMS) that affect the site. The TPP and AMS should be retained on site at all times and they should be included in the site's Project Management Plan.

1.2.4 Phases 1–3 are in line with *BS 5837; 'Trees in relation to design, demolition and construction - Recommendations'* (2012).

1.3 TREES & BUILDING SUBSIDENCE/HEAVE ISSUES

Assessing the potential influence of trees upon load-bearing soils beneath existing and proposed structures, resulting from water abstraction by trees on shrinkable soils, was not included in the contract brief and is not, therefore, considered in any detail in this report. **Arbol EuroConsulting** cannot be held responsible for damage arising from soil shrinkage or heave issues related to the retention or removal of trees on site.

1.4 TREE SAFETY MATTERS AND TREE RISK ASSESSMENT

The BS:5837 tree survey is carried out in sufficient detail to gather data for and to inform the current project. Our appraisal of the structural integrity of trees on the site is of a preliminary nature and sufficient only to inform the current project. The tree assessment is carried out from ground level – as is appropriate for this type of survey - without invasive investigation. The disclosure of hidden tree defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious visual defects that are significant in relation to the existing and proposed land use.
Lastly and to further clarify, this BS:5837 survey does not constitute a full *Visual Tree Assessment* (= TRAM* Level 2 - *Basis Assessment*) that would ordinarily be carried out for Tree Risk Assessment reporting. In effect, this BS:5837 survey equates to a TRAM Level 1 *Limited Visual Assessment*.

* "Tree Risk Assessment Manual" (2nd edition) Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly (2017) International Society of Arboriculture

1.5 SITE OBSERVATIONS

This report has been based on my site observations and in light of my experience. This along with my qualifications are appended to this report.

1.6 CAVEATS

The author does not have formal qualifications in the areas of structural engineering or law. However, making comment on such matters from an arboricultural perspective is both within the normal scope of our instructions and also within the range of the author's experience. Notwithstanding this, specialist professional advice should be sought to clarify/confirm any observations on engineering or legal matters that this report may contain.

2.0 INTRODUCTION

2.1 THE ASSESSMENT METHODOLGY

The British Standard BS:5837 '*Trees in relation to design, demolition, construction - Recommendations*' (2012) provides "guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees…….with structures". The Standard recommends that trees with categories A-C (where A is

the highest quality) are a material consideration in the development process. Such trees may then become a constraint for a planning proposal. Category U trees are those that will not be expected to exist for long enough to justify their consideration in the planning process (i.e. no more than 10 years). Tree categories are used with the number 1, 2, or 3 to signify whether the category was made based on arboricultural, landscape or cultural (including conservation) values respectively. The tree categories are shown on plan by colour-coding:

Category A (green colour-coded): Good examples of their species with an estimated life expectancy of at least 40 years.
Category B (blue colour-coded): Not suitable for an 'A' category due to impaired condition or a tree lacking special 'A' qualities: with an estimated life expectancy of at least 20 years.
Category C (grey colour-coded): Unremarkable trees of very limited merit or with a significant impaired condition not warranting an 'A' or 'B' category: with an estimated life expectancy of at least 10 years. See young trees below.
Category U (red colour-coded): Structurally defect /dead tree.

Reasonably young trees below 150mm stem diameter would normally be given a C category (if they satisfy the retention quality criteria). However, as they are small they could be replaced/transplanted and as such they should not be regarded as a significant constraint on a development.

2.2 ARBORICURAL IMPACT ASSESSMENT (AIA)

We have considered - with access permitting for 3rd party trees - the following BS:5837 (2012) recommendations:

1. Tree Categories (Quality Assessment).
2. Crown Spread measured to the four cardinal compass points for single specimens only.
3. Tree Constraints.
4. Tree retention & protection

N.B. Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades along with any conclusions or tree management recommendations remain valid for a period of 12 months.

The specific tree report is documented in Section 7 of this report.

3.0 GENERAL DATA

3.1 GENERAL

The three phases of an Arboricultural Implication Assessment were outlined in Section 1.1.1-1.1.4. In addition, during the development process for retention trees, there may be three and even four constraints to consider - Construction Exclusion Zone (CEZs):

- CEZ 1: Root Protection Area (see 3.1.1).
- CEZ 2: Tree Crown Protection (see 3.1.2).
- CEZ 3: Tree Dominance (see 3.1.3).
- CEZ 4: New Tree Planting Zone (see 3.1.4).

The above CEZ's are explained further below.

3.1.1 CEZ 1: ROOT PROTECTION AREA (RPA)

The RPA, calculated in m², should be protected before and during any demolition/construction works. This ensures the effective retention of trees by preventing physical damage to (a) roots and (b) their rooting environment (typical problems - soil compaction; soil level changes and soil capping that can impede gaseous exchange to living roots*). The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor

of twelve. With the AIA1, the RPA is only shown indicatively on the preliminary Tree Constraints Plan (TCP), as its shape may be subject to amendment as the design progresses.
During the AIA2, the derived radial measure is converted by the consulting Arborist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s).
The means of protecting the RPA will include the installation of Tree Protection Fencing prior to the start of any demolition or construction work on site, the prohibition of various harmful activities within the RPA (e.g. mechanical excavation, soil stripping & trenching, fire lighting, materials storage and creating excessive sealed surfacing), and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

* Roots must have oxygen for survival, growth and effective functioning.

3.1.2 CEZ 2: TREE CROWN PROTECTION ZONE

This is the area above ground occupied by the tree crown (branches) and considers the required demolition/construction working space necessary for the development. The possibility of an acceptable quantum of pruning may be considered: subject to Council permission/consent (see Section 4.1.1).

Arising from the above, the means of protecting CEZ 2 is likely to include providing an adequate separation distance between retention trees and new buildings. This will relate to the CEZ 3: below.

3.1.3 CEZ 3: TREE DOMINANCE ZONE

This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and the safety apprehension by the site owner/occupier. This area is assessed by considering the height and spread of the tree (now and in the future) relative to the proposed buildings, cross-referenced with the intended end-use. As such, what is assessed is the likely psychological effect of the tree(s) on the end-user.

The purpose of identifying CEZ 3 is to protect trees from post-development pressure by the site's end-users, who may, if resentful of the trees, seek to procure excessive pruning treatments (i.e. the bad practice of topping & lopping) or even to have them removed. This is a common LPA concern, which may lead to application withdrawals, refusals and/or dismissed Appeals.

The means of protecting CEZ 3 is likely to include optimising the site layout and room type (especially in relation to new residential dwellings), such that any adverse impacts of trees are reduced to an acceptable minimum. The key principle is to ensure adequate separation distances between trees and new buildings: notably with habitable space & primary windows.

3.1.4 CEZ 4: NEW PLANTING ZONE

In some cases, it may be appropriate to identify and protect areas (see soil conservation below) intended for new landscape planting, which can fail to establish if the soil has been heavily compacted or contaminated during the demolition/construction process. The means of protecting CEZ 4 will either be by fencing prior to the start of construction/demolition works or by pre-planting soil remediation once construction has finished. Topsoil protection in areas destined for new planting is frequently an economic measure, saving on soil structure remediation and tree (failure) replacement costs.
NB Soil conservation is the process of protecting soil from degradation within a defined area. The physical, chemical and biological properties of a native soil can take hundreds of years to develop but can be destroyed in minutes (i.e. by demolition/construction traffic). Soil conservation is the most effective way to protect soil for future tree planting.

4.0 STATUTORY CONTROLS

4.1 PLANNING LEGISLATION (TREES)

4.1.1 STATUTORY TREE PROTECTION

Trees can be protected in law – via Tree Preservation Orders (TPOs) or by virtue of them growing in a Conservation Area (CA) – by the Government's Town & Country Planning Act 1990. (the Act). Trees may also be protected by Planning Conditions. If any of these apply, written local planning authority (LPA) permission/consent is required before protected trees can be pruned or felled*. Contravention of the Act may carry a fine of up to £20,000 and a criminal record.

* Exceptions include those trees that are dead/hazardous or those that are causing an actionable nuisance to a third-party. In any event, evidence must be provided to defend the removal of such trees.

4.1.2 TREES ON/OFF SITE

Whilst we are not aware that any of the trees are subject to any TPOs, we are however advised that the site is within a CA. Therefore, no tree pruning or felling works *(if required)* should commence at this property until the necessary written consent or *full* planning permission have been obtained from the LPA in respect of this CA.

4.2 WILDLIFE LEGISLATION

The Wildlife and Countryside Act 1981, the Habitats Regulations 1994 (or any other acts offering wildlife protection) form the basis for UK legal wildlife protection. It is not a defence to claim that harm was accidental/unintentional in the course of carrying out tree works (i.e. the negligence of *reckless* harm can now be applied). There is therefore an onus on the operative to check for the presence bird of nesting/bat roosts (e.g. holes, limb cracks/splits or cavities) prior to carrying out any tree work. The bird nesting season is considered to run from March to August, but due to the vagaries of climate change, nesting birds can be found outside of this core period. Bats and their roosts are afforded the highest protection in UK Law.

Specifically:

Bats

All British bats, as well as their roosts and breeding sites are protected under British Law. The Wildlife and Countryside Act 1981 schedule 5 and The Habitat Regulations make it an offence to:

- Deliberately disturb bats
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport a bat or any part of a bat

Birds

The Wildlife and Countryside Act 1981 makes it an offence to:

- Intentionally kill injure or take a wild bird
- Destroy a nest while in use or take or destroy eggs.

5.0 WILDLIFE HABITATS

A cursory assessment of wildlife habitat values of trees and hedgerows on the site was carried out during the survey. No protected or exceptional habitats were identified and details were not recorded. However, trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September. We have not been made aware of the presence of roosting bats and have not identified any obvious signs of roost sites. However, this does not mean that roost sites are absent.

6.0 No. 100 Haverstock Hill London NW3 2BD: TREE REPORT (to be read in conjunction with the appended Tree Protection Plan and Tree Survey)

6.1 THE PROPERTY AND THE DEVELOPMENT PROPOSAL

6.1.1 Site description: A large semi-detached residential property sited on a sloping (downwards west to east) road accessed via steps that lead up from a central footpath. The frontage trees, shrubs and hedges are located on raised bricked terracing that flank each side of this central path. See photo below. We are advised that this bricked terracing was constructed around 2014/2015: notably around the frontage lime T2 (see section 6.4.2).

6.1.2 The proposal: Replacement of the raised western-side brickwork to provide off-street parking space for two vehicles including new electrified entry gates.

The location and detail of the proposed development and the positioning and numbering of the trees can be found plotted on the Tree Protection Plan at Appendix 2. **NB** The original of this plan was produced in colour – a monochrome copy should not be relied upon.

6.2 TREES ON-SITE

6.2.1 Front: The only B-grade tree of merit is the lime T2 that has a well-balanced crown and provides significant public visual amenity. The remaining hedging, shrubs and a single group (H1, S1, S2 and G1: a mix of *Garrya*, olive and bay respectively) either have poor form or are insignificant. Correspondingly, these only merit C-grades.

6.2.2 Side: Whilst the copper beech T3 is a significant tree it has been lopped in the past due to its close building proximity. Importantly, to retain T3 in its position it will require repeated periodic lopping. For this reason, T3 only merits a C-grade.

6.2.3 Rear: None of the rear trees would be affected by this proposed frontage driveway.

6.3 TREES OFF-SITE

6.3.1 No. 98 Haverstock Hill: There is only one frontage tree, the multi-stemmed sycamore T1 that has good form and merits a B-grade.

6.4 IMPACT PROPOSAL ON TREES (to be read in conjunction with the Tree Protection Plan - TPP - at Appendix 2 and the Arboricultural Method Statement at Appendix 3)

6.4.1 Underground Utilities: The electricity supply for the proposed electrified entry gates would be spurred-off the existing supply. There would therefore be no Root Protection Area issue for any retention trees.

6.4.2 CEZ 1: Root Protection Areas (RPAs)

Firstly, as mentioned in section 6.1.1, the frontage raised bricked terracing was recently constructed. Therefore, the RPA on lime T2 is notionally plotted as this would have been 'stripped back' in order to install the retaining wall for this bricked terracing. See the retention wall section below and the unaffected vitality of the lime T2.

6.4.2.1 Footprint of the Proposed Build

The proposed driveway would require the removal of the low–grade H1, S1, S2 and G1. Although these are sited within a Conservation Area it is unlikely that the LPA would make them subject to a TPO in order to affect their retention. This should however be double-checked with the LPA *before* these are removed. No tree pruning would be required on any on/off-site retention trees.

6.4.2.2 Construction Activity

As set out below, extensive tree protection measures would be required. Firstly, to ensure these are installed in a timely manner, we would recommend that a pre-commencement site meeting is held with the on-site contractors (see section 1 within the appended Arb. Method Statement [AMS]). Secondly, there should be adequate site supervision (see section 6.6.2 below and section 5.0 within the appended AMS). Thirdly, active random site monitoring by a Consulting Arborist throughout the development process would be strongly recommended.

Retention Wall around the sycamore T1: This would be outside the RPA of this tree and would be installed using a contiguous line of mini-piles. The installation of the latter would be as follows:

> The existing walled terracing would be retained *(see photo below)* during construction *(see Note 1 on the appended TPP)* on which the mini-piling rig would operate to install a contiguous line of piles for the new retaining wall. Once this has been installed, this existing walled terracing would be removed to continue with the rest of the construction project. See Tree Protection Barriers below.

Importantly, the newly constructed retaining wall around the frontage lime T2 was installed – we are advised in 2014/2015 - with in yr. 2023 not adverse vitality impact on this tree.

Photo to show the existing walled terracing that would be retained during construction of the mini-piled wall (G1: *Garrya* in photo centre)

Tree Protection Barriers (TPBs): As per the appended Tree Protection Plan, if *temporary* TPBs are installed – to establish a frontage Construction Exclusion Zone (CEZ) and *exclude the mini-piling rig* - this would afford adequate RPA protection for T1. Due to restricted space for angular staking the TPBs would be booted with sections ***clamped together*** and with stabilizing struts so they cannot be moved. On no account would this CEZ be used for the storage/preparation of any construction/building materials. **NB** T2 and T3 are in a raised brick bed and would therefore not require any TPBs.

Temporary Storage of Machinery and/or Materials: There would be adequate frontage space. See notation on the appended TPP.

Temporary Site Office: If required part of the vacant property could be used for this purpose.

6.4.3 CEZ 2: Tree Crown Protection Zones

Construction Vehicle Site Access (access facilitation pruning)

As this is an open site there would be no such issues with this proposal.

6.4.4 CEZ 3: Tree Dominance Zones

There would be no such issues with this proposal.

6.4.5 CEZ 4: New Tree Planting Zone

At this stage there is no new *detailed* landscaping proposal.

6.5 TREE PROTECTION DURING CONSTRUCTION

6.5.1 Tree Protection: The protection of retention trees is ***paramount*** to the granting of planning permission, the discharge of tree protection Planning Conditions, the design of the development and the future health, stability and success of the trees. It is widely recognised that mature trees add value to both land and property values.

6.5.2 The Root Protection Area (RPA): RPAs around retention trees should be maintained by the erection of a *temporary* tree protection barrier (TPB) as described at Appendix 4 to this report. The position and extent for the TPB will normally concur with the radius/squared area of the RPA. This staked-off area shall be known as the **Construction Exclusion Zone** (CEZ). The integrity of the TPB to protect **CEZs** should be maintained for the duration of the entire development works. The **CEZ** is marked-up on the appended Tree Protection Plan.

6.6 ARBORICULTURAL METHOD STATEMENT

6.6.1 Purpose & Use

In consideration of the above issues, we have included an Arboricultural Method Statement (AMS) at Appendix 3, which details working methods in relation to trees. This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these should be used to form part of their contract.

6.6.2 Site Supervision

An individual – ideally the Site Agent - must be nominated to be responsible for all arboricultural matters on site (specific responsibilities are set out in the appended Arboricultural Method Statement). This person must:

- be present on site for the majority of the time;
- be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout the build;
- have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
- be responsible for ensuring that all site operatives are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
- make immediate contact with the designated Consulting Arborist (contact number listed on the appended AMS) in the event of any tree related problems occurring, whether actual or potential.

6.6.3 AMS Adoption

If conflicts between any part of a tree and the build arise in the course of the development these can – and should be – resolved quickly and at little costs if a qualified and experienced Consulting Arborist is contacted promptly. Lack of such care will likely lead to the decline and even death of affected trees: often with legal ramifications. The loss or damage to retention trees can spoil design, affect site sale ability and reflects badly on the construction and design personnel involved. Conversely, trees that have received careful handling during construction add considerably to the appeal and value of the finished development.

7.0 CONCLUSIONS

7.1 DEVELOPMENT PROPOSAL & POTENTIAL IMPACT ON TREES

7.1.1 The proposed driveway would require the removal of the low–grade H1, S1, S2 and G1. Although these are sited within a Conservation Area it is unlikely that the LPA would make these subject to a TPO to affect their retention. This should however be double-checked with the LPA *before* these are removed. No tree pruning would be required on any on/off-site retention trees.

7.1.2 As plotted on the Tree Protection Plan at Appendix 2, with the implementation (in a timely manner) of the tree protection measures specified in this report there should be no CEZ 1 (RPA) impact on the retention trees.

7.1.3 There would be no CEZ 2, CEZ 3 or CEZ 4 issues with this application.

7.1.4 See Arboricultural Method Statement at Appendix 3. Active random site monitoring by a Consulting Arborist throughout the development process is strongly recommended (AIA3: Phase 3).

7.1.5 Site Supervision Responsibilities: This would be an essential element during the proposed build to ensure effect tree protection. See section 5.0 in the appended Arboricultural Method Statement.

8.0 RECOMMENDATIONS

8.1 EXECUTION OF CONTRACT

It is recommended that the Architect specifies in writing to the building contractor that tree care conditions apply to the execution of the contract. Lack of care frequently results in the damage, decline and eventual death of trees. This can adversely affect design aims & site sale-ability, and

reflects poorly on the contractors and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of finished developments.

8.2 PROPOSED REVISIONS TO THE SCHEME

We advise that all proposed revisions in respect of external layout, orientation of primary windows, location of underground services, external surfacing and/or landscaping; having implications for retention trees should be referred to us for review.

8.3 TREE WORKS - BEST PRACTICE

Subject to LPA written permission/consent (if applicable - see section 4.1.2) and owners consent, all tree works must conform rigorously to *BS 3998 (2010)* 'Recommendations for Tree Work'* and as modified by research more recent.

All retention trees should be inspected annually by an Arboriculturist to assess the significance of any future physiological, morphological or environmental changes.

* Including any subsequent revisions.

8.4 WILDLIFE CONSIDERATIONS

Trees and hedgerows should be carefully inspected for birds' nests prior to tree pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young birds have fledged, unless however, the trees pose an immediate danger (advice should be sought from the relevant wildlife authorities). All personnel working with or in trees should be vigilant and mindful of the possible presence of roosting bats. A competent ecologist should investigate any indication that trees on the site are used as bat roosts. See section 4.2.

8.5 OUTDOOR AMENITY SPACE

Design of outdoor amenity space should fully consider the locations of existing trees to be retained. Alterations of soil levels and cultivation of ground beneath trees (the RPA) can result in significant root loss or damage and altered drainage patterns, which could lead to a decline in tree health and possible (tree) structural instability. Removal of existing herbaceous vegetation, by hand or appropriate herbicide application* and addition of a thin layer (100-150mm) of sandy-loam topsoil will facilitate the establishment of grass or other vegetation beneath the canopies of existing trees, whilst avoiding unnecessary root disturbance.

* The selection & application of herbicides must be undertaken by a competent person in accordance with the Control of Substances Hazardous to Health (COSHH) regulations. Inappropriate use of herbicides can damage/ kill leaves, shoots, branches or whole trees.

8.5.1 In order to avoid mower/strimmer damage to the base on tree trunks (i.e. bark stripping), grass seed/turf ***should not*** be laid within a 0.5m (min.) radius around trees.

8.5.2 With respect to any soft landscaping works, there should only be limited soil cultivation works (max. depth 150mm) within the retention tree RPAs.

9.0 OCCUPIERS LIABILITY ACTS

Attention is drawn to the provisions of the Occupiers liability Acts (England & Wales - 1957 & 1984), which place a responsibility upon landowners to ensure the safety of others entering their land whether by invitation or permission: inclusive of trespassers. There is a special responsibility to ensure the safety of children, who may be unaware of hazards. Annual inspections of trees by a competent person, or following storm events, together with implementation of any remedial tree work recommendations, should ensure compliance with the legislation regarding the above legislation.

10.0 REFERENCES

- *BS 5837; 2012 'Trees in relation to design, demolition and construction - Recommendations'* British Standards Institute, London.

- Arboricultural Association guidance note *"The use of cellular confinement systems near trees: a guide to good practice"* (2020).
- *BS 3998; 2010 'Tree Work Recommendations'* British Standards Institute, London
- *'NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees' 2007* National Joint Utilities Group (NJUG) Volume No. 4: No. 1.
- Arboricultural Practice Note 12; 2007 – AAIS
- *'Availability of Sunshine' BRE - CP 75/75*
- *'Tree Roots in the Built Environment'* 2006 - Dept. for Communities & Local Government (DCLG).
- *'Up by Roots: healthy soils & trees in the built environment'* 2008 James Urban, International Society of Arboriculture.
- *'Arboriculture';* 1999 3rd edition R. Harris, J. Clarke & N. Matheny. Prentice Hall.
- *'Soil Management for Urban Trees'* 2014 International Society of Arboriculture, Best Management Practice series.

Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MRSB.
Technical Director: Arbol EuroConsulting Ltd.
Royal Society of Biology **Chartered Biologist**
International Society of Arboriculture **Certified Arborist** (ID: UI-1287A)
LANTRA Approved **Professional Tree Inspector** (Ref: HO00178227 504187)
International Society of Arboriculture **Qualified Tree Risk Assessor** (ID: 2148)

No. 1 Landford Close Rickmansworth WD3 1 NG
Mobile: 078844 26671
Email: russell@arboleuro.co.uk

APPENDIX 1

TREE SURVEY SCHEDULE
(see appended at end of report)
1 page

APPENDIX 2

TREE CONSTRAINT AND PROTECTION PLANS
(see appended to the report)

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon.

APPENDIX 3

ARBORICULTURAL METHOD STATEMENT
3 pages

ARBORICULTURAL METHOD STATEMENT (AMS)

Site: No. 100 Haverstock Hill London NW3 2BD

To be read in conjunction with the Tree Report sections 6-8 and Tree Protection Plan at Appendix 2.

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon.

This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these must be used to form part of their contract.

Consulting Arborist contact details: Russell Ball – mob. No. 078844 26671

SEQUENCE OF WORKS

From commencement of the subject development, the following methodology will be implemented in the manner and sequence described:

1. Pre-commencement site meeting.
2. Arboricultural pruning and/or removal works: with written LPA permission for any protected trees.
3. Erect *temporary* Tree Protection Barriers (TPBs) to establish fenced-off Construction Exclusion Zones (CEZ):
4. Main construction works.
5. Site Supervision Responsibilities
6. Removal of the TPBs.

1. PRE- COMMENCEMENT SITE MEETING

To outline on-site working methods in relation to trees prior to any demolition and/or construction activity, a site meeting of the following shall take place:

- Client
- Architect/Planning Consultant
- Structural Engineer
- Main Contractor
- LPA Arboricultural Officer (*optional)*
- Consulting Arborist
- Site Agent

2. ARBORICULTURAL PRUNING AND/OR REMOVAL WORKS

1. The proposed driveway will require the removal of the low–grade H1, S1, S2 and G1. Although these are sited within a Conservation Area it is unlikely that the LPA could/would make them subject to a TPO to affect their retention. This should however be double-checked with the LPA *before* these are removed. No tree pruning would be required on any on/off-site retention trees.
2. All operatives must be equipped with and use personal protective equipment (PPE) in accordance with current Health & Safety Executive current directives and industry codes of practice.
3. Performance of all arboricultural operations and use of equipment must be in accordance with current Health & Safety Executive current directives and industry codes of practice.

3. ERECT *TEMPORARY* TREE PROTECTION BARRIERS

1. Prior to construction and *to exclude the mini-piling rig*, the main contractor will erect the TPBs as per the appended Tree Protection Plan (TPP) and as detailed in the *'Tree Protection Barrier Specification'* at Appendix 4 of this report. See also Appendix MS(ii) below. This will establish the fenced-off **Construction Exclusion Zone**: CEZs (marked up on the TPP).
2. Due to restricted space for angular staking the frontage TPBs shall be booted with sections ***clamped together*** and stabilizing struts so they cannot be moved.
3. On no account shall this CEZ be used for the storage/preparation of any construction/building materials.

4. MAIN CONSTRUCTION WORKS

1. **Site Office:** If required part of the vacant property could be used for this purpose.
2. **Temporary Storage of Construction Material/Equipment**: See area plotted on the appended TPP.

3. **Retention Wall around the sycamore T1:** This shall be installed using a contiguous line of mini-piles. The installation of the latter will be as follows:

   The existing walled terracing shall be retained during construction *(see Note 1 on the appended TPP)* on which the mini-piling rig will operate to install a contiguous line of piles for the new retaining wall. Once this has been installed, this existing walled terracing will be removed to continue with the rest of the construction project.

4. **Construction Exclusion Zone (CEZ):** There must be no (a) storage of construction material/equipment or (b) preparation of noxious substances (e.g. cement) in any area designated as the CEZ and enclosed by the TPB.
5. Before commencing work on site, all operatives must be briefed by the **Site Agent/Contract Manager** on the importance of protecting both on and off-site trees. The basis of this briefing will be the protection measures as set out on the Tree Protection Plan (TPP) including the position of **Tree Protection Barriers** and **Construction Exclusion Zones**.
6. During the construction the **Site Agent/Contract Manager** will be responsible for all tree protection measures. See also ***Site Supervision Responsibilities*** below.

5. SITE SUPERVISION RESPONSIBILITIES

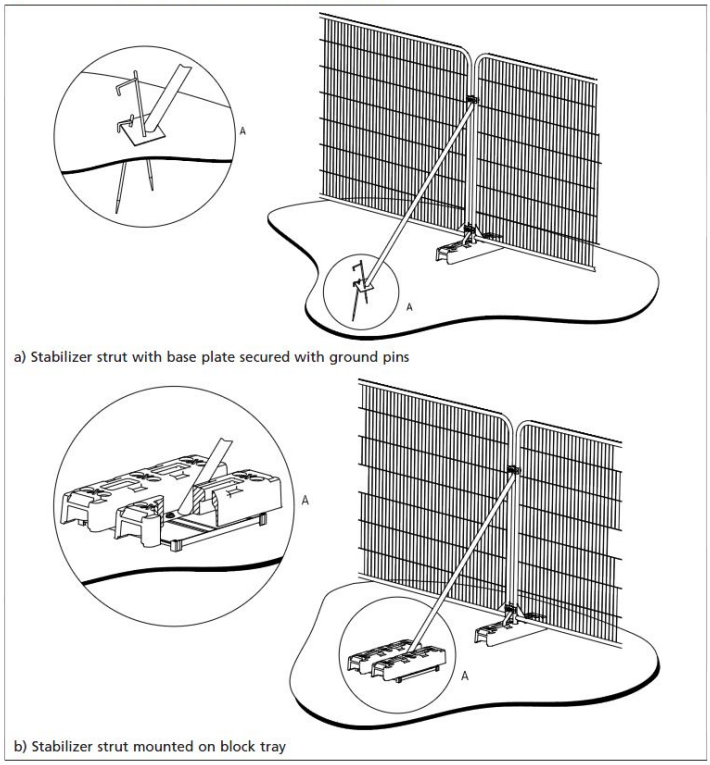
1. It will be the responsibility of the main contractor to ensure that any tree protection planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
2. The main contractor must assign tree protection monitoring duties to one or more individuals working at the site, who will be responsible for all tree protection monitoring and supervision (see the *Site Personnel Induction Form* at Appendix MS ii).
3. The individual(s) assigned tree protection monitoring duties must:
   - Be present on site for the majority of the time;
   - Be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout all phases of the development;
   - Be responsible for ensuring all tree protection measures are adhered to as detailed in the Arboricultural Impact Assessment (AIA) report and Arboricultural Method Statement (AMS);
   - Ensure all site operatives without exception read and understand the tree protection and control measures detailed in the AMS;
   - Keep on file all individual Site Personnel Induction Forms which must be signed by all site operatives (including sub contractors) indicating they have read and understood the control measures detailed within the AIA report and AMS;
   - Maintain a written record of Tree Protection / Construction Exclusion Zone inspections, to be kept up to date by the person(s) who have been designated the inspection and monitoring duties;
   - Have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
   - Be responsible for ensuring that all site operatives including sub contractors are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
   - Make immediate contact with the Consulting Arboriculturist in the event of any tree related problems occurring, whether actual or potential. (Contact details including telephone number and email address are listed on the Title Page).
4. The Construction Exclusion Zone fencing, ground protection and all signs must be maintained in position at all times and checked on a regular basis by the on-site person(s) who have been designated that responsibility.
5. The main contractor will be responsible for contacting the Local Planning Authority and the Consulting Arboriculturist at any time issues are raised relating to the trees on site.
6. If at any time pruning works are required, permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998:2010 Tree Work – Recommendations (As updated).
7. The main contractor will ensure the build sequence and phasing is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position and undisturbed until completion of ALL construction works on the site.
8. The main contractor will be responsible for ensuring all site operatives including sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

6. REMOVAL OF *TEMPORARY* TREE PROTECTION BARRIERS (TPB)

1. The TPBs will be removed only upon completion of the construction.

APPENDIX MS(i)

Figure 3 Examples of above-ground stabilizing systems



APPENDIX MS(ii)

Site Personnel Induction Form

Name:

Site Address:

Date:

Declaration	**Tick to Confirm**
I have read and understand the Arboricultural Method Statement and the requirements to be employed / actioned at the site regarding tree protection.	
I understand that all tree protection measures (fencing and ground protection) must not be moved or disturbed throughout the development project without prior agreement with the Consulting Arboriculturist.	
I understand that certain operations must only be undertaken under supervision of the Consulting Arboriculturist or a suitably qualified Arborist and/or must not be undertaken without their approval.	
I acknowledge that any concerns I have regarding the protection of trees at and adjacent to the development site will be brought to the attention of the Site Manager/Supervisor.	
I acknowledge that I must not cause direct or indirect damage to any on site or neighbouring tree, either above or below ground level during the course of my daily operational duties.	

Signed:……..

APPENDIX 4

TREE PROTECTION BARRIER SPECIFICATION

1 page only

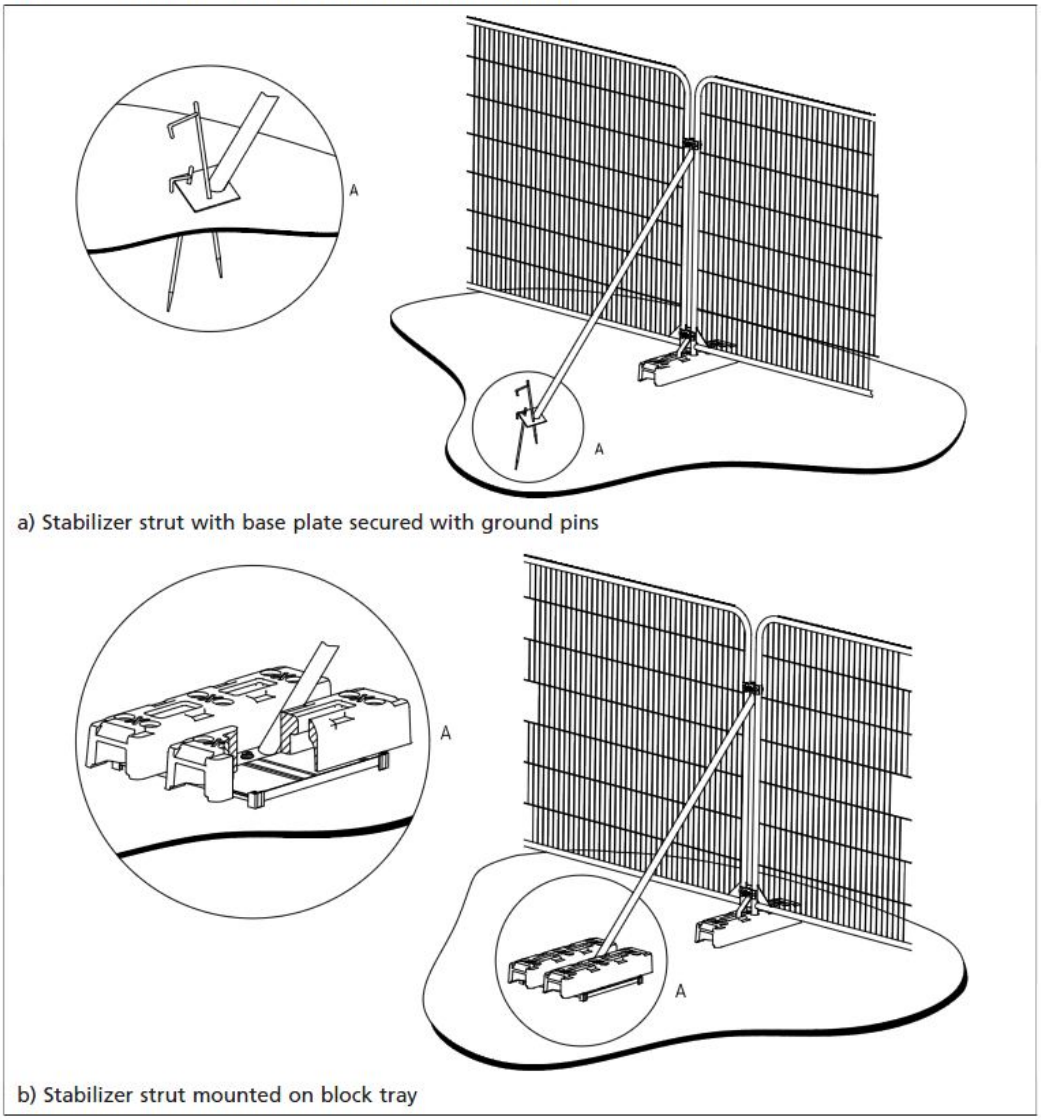
TREE PROTECTION BARRIER SPECIFICATION

The Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) enclosed by temporary protective fencing must:

1. Be erected prior to any site works, demolition or construction works, delivery of site accommodation or materials and must remain for the duration of the demolition/construction works. All-weather notices should be attached to the barriers with the following wording: **"CONSTRUCTION EXCLUSION ZONE – NO ACCESS"**
2. Be protected by temporary protective fencing and other measures as specified and as defined by area (m^2) on the drawings (Tree Protection Plan - TPP).
3. Preclude the storage or tipping of all materials and substances, in addition, toxic substances such as fuels, oils, additives, cement, or other deleterious substances within 5.0 metres of an exclusion zone.
4. Any incursion into the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) as indicated on the Tree Protection Plan (TPP) must be by prior arrangement, following consultation with the Local Planning Authority.

Temporary Tree Protection Barrier (Specification taken from BS:5837 -2012)

Figure 3 Examples of above-ground stabilizing systems



APPENDIX 5

OUTLINE CIRRICULUM VITAE AND PROFESSIONAL EXPERIENCE

Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MSB.
Chartered Biologist

Qualifications

- BSc. (Hons.) Botany (Manchester University).
- Post Graduate Diploma: Landscape Management (Manchester University).
- Royal Society of Biology **Chartered Biologist** (since 1995).
- International Society of Arboriculture **Certified Arborist** No. UI 1287A (2017)
- *LANTRA* Approved **Professional Tree Inspector** (Ref: HO00178227 504187)
- International Society of Arboriculture **Qualified Tree Risk Assessor** (ID: 2148)

Professional Experience (1984-2012)

- Tree Works Contractor.
- Harrow Council: Assistant Tree Officer (Parks Dept.)
- London Tree Officers Association: Executive Officer.
- International Society of Arboriculture (European office): Senior Executive.
- Arbol Euro Consulting: Technical Director (**Madrid, Spain**).
- Harrow Council: Principal Tree Preservation (TPO) Officer. During my employ with Harrow Council I served on the Executive Committee of the *"London Tree Officers Association"*.
- Arbol Euro Consulting Ltd: Technical Director (**London, UK**).

Professional Memberships

- International Society of Arboriculture (ISA). President of the ISA UK/I Chapter (2010-2012).
- Arboricultural Association
- Consulting Arborist Society
- Royal Society of Biology
- Royal Horticultural Society (Chelsea Flower Show *Silver-Gilt* medal Winner: *Rainforest Belize* – 1996)

Contact Details

- Mobile: 078844 26671
- Email: russell@arboleuro.co.uk

HEADINGS & ABBREVIATIONS

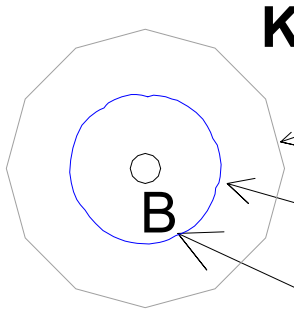
TREE NO.	REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE
SPECIES:	COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
AGE RANGE/LIFE STAGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
CROWN SPREAD:	MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
CROWN CLEARANCE &DIRECTION OF GROWTH:	HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIA/MULTI-STEM DIA:	STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, N = NORMAL
ESTIMATED REMAINING CONTRIBUTION:	RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
BS 5837CATEGORY & SUB-CATEGORY GRADING:	A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION: SUB-CATEGORY REFERS TO ARBORICULTURAL (1), LANDSCAPE (2) & CULTURAL/CONSERVATION VALUES (3).
BS 5837 RPA:	ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M^2)
BS 5837 RADIUS:	PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER

SITE:	100 Haverstock Hill, London NW3 2BD
CLIENT:	PROGRESSIVE DESIGN TEAM
BRIEF:	CARRY OUT A PHASE I ARBORICULTURAL IMPACT *(TREE CONSTRAINT)* ASSESSMENT ON THE PROPOSED FRONTAGE DRIVE AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	20/07/2023
VIEWING CONDITIONS:	SUNNY - CLEAR
JOB REFERENCE:	101 845

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m) N	E	S	W	CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m^2)
T1	Sycamore *Off-site tree with no access to fully survey*	EM	9.0	3.2	3	3.2	3	1.7	Est. *(also trunks with ivy)* 150; 150; 120; 90; 120	N	Good multi-stemmed well-balanced crown form. T1 provides significant public visual amenity	Advise tree owner to remove the trunk ivy (carefully using hand tool) to prevent the crown from becoming ivy-clad	B2	3.43	37.1
T2	Lime	EM	22+	3.5	3.5	3.5	3.5	2.5	480	N	Good well-balanced crown form and provides significant public visual amenity	None at time of survey (NATS)	B2	5.7	104.2
T3	Copper Beech	EM	18+	3.2	1.9	3.5	1.9	4.0	540	N	Large significant tree but has and will continue to require lopping back to retain it between the two buildings	NATS	C1	6.4	131.9
H1	*Garrya* spp. x 8	Y	1.6-1.9	0.3	0.3	0.3	0.3	-	30	N	Provides some useful screening on upper terracing otherwise an insignificant small hedge	NATS	C1	0.2	0.4
S1	Olive	Y	2.2	0.9	0.9	0.9	0.9	0.1	40	N	Unnatural 3 x tiered 'poodle clipped' shrub	NATS	C1	0.48	0.7
S2	Olive	Y	2.5	1.0	1.0	1.2	1.2	0.2	68	N	Large shrub that in the past lost its central leader	NATS	C1	0.8	2.1
G1	Bay x4	Y	1.5	0.8	0.8	0.8	0.8	0.2	50	N	Provides some useful screening on the upper terracing otherwise an insignificant small hedge	NATS	C1	0.6	1.1

KEY



Arbol EuroConsulting

1 Landford Close Rickmansworth WD3 1NG

100 Haverstock Hill London NW3 2BD
Tree Constraints Plan

SCALE : 1 : 100 @ A3

DATE : 31/07/2023

N

MAP FILENAME : 101 845

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

No 100 Haverstock Hill

Walled Terrace

T3
C

Walled Terrace

Insignificant Lilac shrubbery

S1
C

S2
C

Walled Terrace

Walled Terrace

T2
B

G1
C

Walled Terrace

Walled Terrace

T1
B

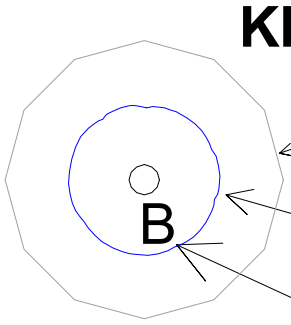
H1
C

Haverstock Hill Road

5m 10m

SCALE BAR

KEY



CEZ = Construction Exclusion Zone

Temporary Booted, Clamped and Braced Tree Protection Barrier

NOTES

1. Existing walled terracing to be retained during construction on which the mini-piling rig will operate to install a contiguous line of piles for the new retaining wall. Once this has been installed, this existing walled terracing will be removed to continue with the rest of the construction project.

THIS TREE PROTECTION PLAN MUST BE READ IN CONJUNCTION WITH THE ARBORICULTURAL METHOD STATEMENT THAT ACCOMPANIES THE TREE REPORT (IN APPENDIX 3)

Arbol EuroConsulting

1 Landford Close Rickmansworth WD3 1NG

100 Haverstock Hill London NW3 2BD
Tree Protection Plan

SCALE : 1 : 100 @ A3

DATE : 31/07/2023

MAP FILENAME : 101 845

N

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

No 100 Haverstock Hill

Walled Terrace

T3
C

CEZ

CEZ

Walled Terrace

CEZ

Temporary Storage of Machinery and/or Materials

CEZ

SEE NOTE 1

T2
B

CEZ

Walled Terrace

CEZ

CEZ

CEZ

T1
B

CEZ

CEZ

Haverstock Hill Road

5m 10m

SCALE BAR