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# ARBORICULTURAL METHOD STATEMENT (AMS)

## 7 The Grove
## London
## N6 6JU

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# 1. Introduction

1.1. This document is an Arboricultural Method Statement (AMS). It is written by a professional arboriculturalist with specialist knowledge of trees. The purpose of this AMS is to protect trees from damage during demolition and construction. All works must comply with the provisions of this method statement unless prior agreement is secured in writing from the author or another suitably qualified arboriculturalist.

1.2. This document supersedes an early AMS dated July 2021 (revised March 2022).

1.3. Trees are living organisms. Although often very large and long lived they are vulnerable to damage caused by construction and demolition. In particular, root systems must be protected if trees are not to be harmed. This requires protecting the soil in which those roots live. Roots need soil which contains water and air. Soil compacted by heavy vehicles or materials is devoid of air and water and therefore cannot support healthy roots.

1.4. In order to protect trees both above and below ground normal practice is to create **Construction Exclusion Zones** (CEZs) around an area equivalent to each tree's **Root Protection Area** (as defined by BS5837:2012 Trees in relation to design, demolition and construction - Recommendations). However where, as in this case, construction takes place in a garden close to trees a CEZs of this type would prohibit the development. It is therefore necessary to permit access to areas that would

otherwise be off limits and protect the trees by other means. This is why the methodology in this document must be strictly adhered to.

1.5. It is strongly recommended that this document form part of the tendering process so that contractors are fully aware of constraints when tendering for work. This document should be shown to and agreed with all contractors prior to signing of contracts. Compliance is to be treated as a condition of all contracts.

## 2. Tree Protection (Generic Provisions)

2.1. No damage shall be caused to any part of trees to be retained.

2.2. No tree shall be damaged by any crane, boom, or other equipment.

2.3. No roots shall be damaged or cut unless as specifically provided for in this document or subsequent written agreement of a suitably qualified arboricultural consultant.

2.4. Soil within Root Protection Areas, marked on the Tree Protection Plan (**TPP**) must be protected from contamination and compaction.

2.5. All existing hard standing is to be retained during demolition and construction for as long as possible to reduce loading on soil beneath.

## 3. Protecting Trees in the Rear Garden (Specific Provisions)

3.1. Construction and demolition are taking place very close to some trees, in particular the **old hornbeam (Tree T1)**. This tree is an excellent specimen (Grade A1/3) and is in good health. The purpose of the provisions in this document are that this tree, and all other retained trees, should remain in good health during, and for decades after, the build.

## 4. Tree Protection Plan

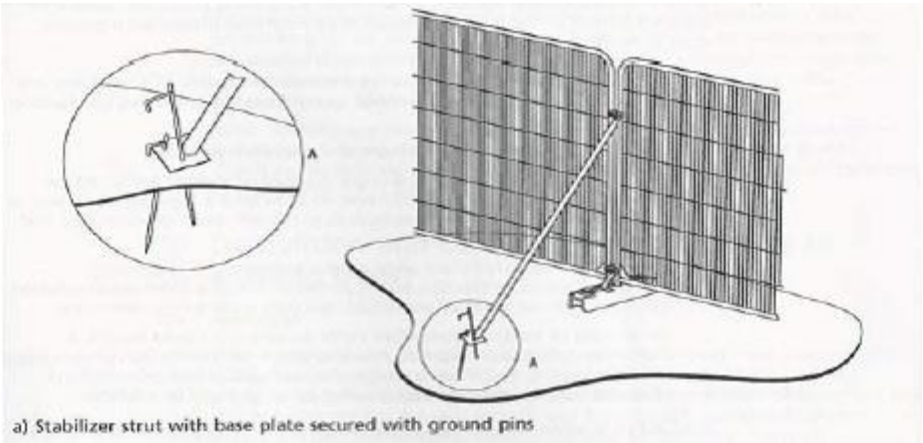
4.1. The Tree Protection Plan (TPP) defines areas of importance to the health trees and provisions to protect them.

4.2. A **Root Protection Area (RPA)** is the area a tree needs for its roots. This area must be protected from compaction or disturbance, including storage, loading, traffic and spillages.

4.3. It is recognised that access to parts of some of the RPAs is essential to the build and therefore special provisions apply to those parts of specific RPAs where construction and demolition activities will occur. This only applies to the RPAs of trees 1, 7, 27, 28 and 35. All other RPAs, and those parts of RPAs to which access is not essential will be Construction Exclusion Zones (CEZs). CEZs are marked on the TPP.

4.4. Prior to commencement of works fencing is to be constructed to prevent access to the Construction Exclusion Zones (CEZ). This fencing is to remain in place during the entire build. The fencing is not to be opened or moved without prior written approval of an appropriately qualified arboricultural consultant.

4.5. The CEZ fencing will take the form set out in BS5837 as illustrated in the diagram below.



a) Stabilizer strut with base plate secured with ground pins

4.6. The fence shall be clearly marked at all times "*Construction Exclusion Zone – NO ACCESS*". Once installed CEZ fencing will be inspected by a suitably qualified arboricultural consultant to ensure compliance.

4.7. Particular caution is necessary in the High Priority Root Area marked on the TPP. This is the area closest to the hornbeam (T1) where larger roots are likely to occur. However the provisions of this AMS apply to the entire RPA unless otherwise stated.

### 4.8. The Hornbeam (Tree T1)

4.8.1. The notional (or generic) RPA for the hornbeam is a circle of 7.2m diameter centred in the middle of the root base. However, because this tree is close to buildings and hard standing, rather than rely simply on a generic 7.2m circle around the tree, a **Site Specific RPA (SSRPA)** has been devised to reflect the tree's most likely root zone.

4.8.2. In addition, because the tree is very close to areas of construction and demolition, a further **High Priority RPA (HPRPA)** is defined. This is a described by a circle of 2.25m radius around the centre of the tree.

4.8.3. All three areas (RPA, SSRPA and HPRPA) are marked on the Tree Protection Plan (TPP). For the purpose of this project all three areas are to be treated as essential to the tree's health and restrictions apply to all operations in these areas.

## 5. Specific Operations within RPAs

## 5.1. Demolition

5.1.1. Wherever possible all demolition operations should take place on existing hardstanding (i.e. concrete surfaces). Specifically in relation to Tree 1, all materials are to be extracted east out of the RPA, not west into the CEZ/RPA.

5.1.2. Hardstanding to be lifted should only be removed once other above ground demolition has been completed. Particular care must be taken within the High Priority Root Area to avoid damage to larger (~~ø~~>25mm) above or below ground roots and to avoid soil compaction. Loading must be avoided in this area and if any load that cannot be carried by hand has to transit the HPRA ground protection must be installed first.

5.1.3. In so far as it may be desirable or necessary to remove hardstanding before potential loading, ground protection shall be installed.

5.1.4. The garden paving slabs west of the existing terrace are not to be subjected to loading unless ground protection is installed above.

## 5.2. Ground Protection

5.2.1. Existing concrete surfaces (not paving slab) outside the HPRA can be loaded up to a maximum of 1000kg without extra ground protection. All other areas must be protected with temporary above ground load bearing surfaces for any loading greater than 100kg.

5.2.2. **Ground protection specification**.

5.2.2.1. The ground shall be covered with a permeable, geo-textile membrane. Woodchip to a minimum depth of 150mm will be laid over the membrane. Woodchip shall be untreated material from broadleaved trees of average particle size of 1cm$^3$ or larger.

5.2.2.2. The woodchip will then be covered with exterior grade plywood (minimum 20mm thick) or interlocking proprietary temporary ground cover of equivalent strength and thickness.

5.2.2.3. Maximum temporary/transit loading capacity for this ground protection is 1000kg. If loading greater than 1000kg is required, additional more robust ground protection will be specified.

## 5.3. Foundations and Excavations within Root Protection Areas

### 5.3.1. Outbuilding/Bike Shed

5.3.1.1. Foundations for the outbuilding require careful siting and installation especially where they are located outside the footprint of the existing shed and or within the hornbeam High Priority RPA. Excavations for locating the helical piles will be done by hand and under supervision by the author or another suitably qualified arboricultural consultant.

5.3.1.2. Precise locations will be determined by sub-soil root conditions in consultation with the author or other arboricultural consultant once

excavations have been done.

### 5.3.2. New House terrace

5.3.2.1. The foundations for the new terrace will be formed by a strip foundation located beneath the existing terrace and cantilever above the Site Specific RPA. This will avoid excavations within the areas likely to contain roots. Although part of this strip foundation is within the generic RPA, locating it beneath the existing terrace reduces the risk that roots will be encountered. However, to ensure no damage occurs the trench for this foundation must be dug by hand. If any root greater than 25mm in diameter is encountered the author or another suitably qualified arboricultural consultant must be consulted. No root greater than 25mm in diameter shall be cut or damaged.

### 5.3.3. New Evening Terrace

5.3.3.1. The new Evening Terrace encroaches on the **hornbeam (T1)** RPA, both generic and Site Specific). It will therefore be of 'no dig' construction, built above ground and permeable to water and air. The stone will be no more than 50mm thick and will be laid on no more than 50mm of washed sharp sand. There must be no salt in the sand and washing is to be done off site, i.e. outside the garden and any tree RPA. Soil adjacent to the edges of the terrace may be built up with top soil or other permeable material up to a maximum of 100mm depth. A permeable geotextile layer is recommended

beneath the sand to restrict growth of roots upward which might result in deformation of the terrace.

### 5.3.4. Gravel Path inside T1 RPA

5.3.4.1. The proposed Hoggin path within the hornbeam RPAs must be constructed with great care because it is very close to the tree. It will be of 'no dig' construction, built above ground and permeable to water and air. The surface will be lose gravel no more than 15mm deep, above Hoggin no more than 50mm thick. Neither will be compacted. Soil adjacent to the edges of the path may be built up with topsoil or other permeable material up to a maximum of 100mm depth. Timber edging will not penetrate existing ground and will therefore be a maximum of 100mm deep. Small stakes (max 25mm square x 270mm long) will be used to secure timber edging. To avoid root damage installation of these stakes will be supervised by a suitably qualified arboricultural consultant.

### 5.3.5. Basement Excavations

5.3.5.1. It is considered unlikely that roots will occur in the area to the east end of the RPA to be dug out for the new basement staircase. However it is possible that roots will be present and excavations must therefore be dug manually to a depth of 1m. If any roots of a diameter greater than 25mm are found the project arboricultural consultant should be consulted immediately.

### 5.3.6. Pool House

5.3.6.1. The new pool house sits partially within the RPA of an interesting, three stem prostrate **Lilac tree (T27)**. Ideally this tree is to be retained. It was observed to be sporting small bracket fungi (possibly *Bjerkandera formosa*) on its west limb which suggests that part of the tree is in poor health. However remaining limbs appear healthy.

5.3.6.2. The RPA incursion (based on a generic circular RPA) is approximately 30%. However a significant portion of this is existing hardstanding (a concrete slab foundation for an old shed) and if this is excluded, on the basis that the soil beneath is already sub-optimal for roots, the RPA loss is less than 20%.

5.3.6.3. Foundations will not cross the RPA tangentially but will rest on two strips in radial orientation, one outside the RPA to the east and another within the RPA to the west. The western strip will be constructed under the existing hard standing. The 1.25m x 0.35m trench will be hand dug under arboricultural supervision.

5.3.6.4. A York stone floor will be on a concrete slab suspended above Cordek Ventform tiles resting on the existing ground. Some levelling up will be required to level the floor.

### 5.3.7. Pool

5.3.7.1. The large Eucalyptus in the neighbouring garden at 5 The Grove

was felled (Ganoderma brackets – not inspected by the author) and the **small yew T33**, mistakenly listed to be retained in the Tree Schedule, is to be removed. The pool will not therefore directly impact any retained tree RPA.

5.3.7.2. The pool apron hardstanding will encroach on approximately 20% of the RPA of the **Contorted Hazel (T35)**. Ground preparation in this area will require arboricultural supervision but with such a small tree large roots are unlikely to be encountered in the periphery of the RPA.

### 5.3.8. Access within Rear Garden and Removal of Spoil

5.3.8.1. The scale of excavations and other construction within the garden associated with the pool, pool house, services and hard landscaping will require detailed plans for access and removal of spoil. All these will have to take account of all RPAs of retained trees and especially that of the hornbeam T1.

5.3.8.2. Further detailed provisions for tree protection will be devised once an outline construction and excavation method statement has been devised by the tendering builder. That document will address ground protection and avoidance of compaction or other harm to all retained trees, including but not necessarily limited the following:

5.3.8.2.1. No vehicle, personnel or material is to enter any RPA

without specific provision provided within this or a subsequent AMS;

5.3.8.2.2. Services are to avoid all RPAs unless specifically provided for within this or a subsequent AMS;

5.3.8.2.3. No trenching or excavation is to take place within any RPA unless specifically provided for within this or a subsequent AMS;

5.3.8.2.4. Any excavations within any RPA are to be dug by hand under supervision of a suitably qualified arboricultural consultant;

5.3.8.2.5. CEZs are to be fenced and respected at all times unless access is specifically provided for within this or a subsequent AMS;

5.3.8.2.6. Adequate ground protection is to be specified and used in all areas designated for tree planting to avoid compacting soil.

### 5.3.9. West Seating Area

5.3.9.1. Further detail is required regarding specification of the west seating area within RPAs of retained trees, including the large **Mountain Gum (T40)**.

5.3.9.2. Note T40 has significant basal wounds and is subject to on going

arboricultural assessment as to its suitability for retention.

## 6. Generic Provisions

6.1. No **soil level** is to be changed other than in accordance with approved architects plans; as agreed with a qualified arboricultural consultant; or temporarily as above ground protection (see Ground Protection above).

6.2. If any **root > 25mm** in diameter is exposed advice must be sought from the author or another suitably qualified arboricultural consultant.

6.3. If any root < 25mm Ø has to be cut it must be cut with a sharp tool, leaving a cleanly cut surface.

6.4. No **heavy materials** are to be stored within the HPRA or CEZ. This includes: machinery, tools, bricks, paving slabs, resurfacing materials, spoil, etc. Heavy means anything that cannot be easily lifted by one operative by one hand.

### 6.5. Digging and Trenching (generic provisions)

6.5.1. Any new underground services near to trees will be installed in accordance with: *BS 5837:2012 Trees in relation to design, demolition and Construction - Recommendations*; and *National Joint Utilities Group Booklet 4: 2007 Guidelines for the planning, installation and maintenance of utility services in proximity to trees* (NJUG4) or later industry good practice guidance.

6.5.2. No mechanical digging, trenching or other mechanised operations are to occur within CEZs.

6.5.3. Any trenching or digging within RPAs to be conducted by hand or using an airspade. Such operations to conform to other specific provisions detailed in this AMS or as agreed in writing by the author or suitably qualified arboricultural consultant.

6.5.4. Where possible lighting and any other cables should utilise existing sub surface ducts.

6.5.5. If new trenches are required within RPAs there location and method of dig shall be agreed in advance with the author or another suitably qualified arboricultural consultant.

## 6.6. Roots

6.6.1. Any exposed roots must be protected at all times by wrapping with clean hessian.

6.6.2. Where possible all roots are to be retained intact.

6.6.3. No root with a diameter larger than 25mm Ø shall be cut.

6.6.4. If any root > 25mm Ø is exposed advice must be sought from the author or another suitably qualified arboricultural consultant.

6.6.5. Any smaller roots which are damaged shall be cut cleanly, with a sharp tool leaving the smallest possible wound.

6.6.6. When backfilling any hessian wrapping shall be removed and roots back filled with a no-fines granular material such as sharp sand (not builder's sand which has a high salt content and will kill roots).

## 6.7. Contaminants, chemicals, fuel, fire etc.

6.7.1. No chemicals, fuel, contaminated water, or other toxic substance is to enter or be allowed to seep into any CEZ or RPA.

6.7.2. No fire or hot material is to enter any RPA.

6.7.3. All mixing of cement / concrete must be undertaken outside of the RPA of all of the retained trees.

## 6.8. Permeable Surfaces

6.8.1. Any new surfacing within RPAs must be both water and air permeable.

## 6.9. Arboricultural Supervision

6.9.1. In addition to instances referred to above, specific stages of the development will require supervision by the author or another suitably qualified arboricultural consultant.

6.9.2. A schedule of arboricultural supervision will be agreed between the parties prior to work commencing.

6.9.3. Arboricultural supervision is required as follows.

6.9.4. To sign off tree protection measures, i.e. when the CEZs and GPZs have been installed but prior to any other work commencing.

6.9.5. At predetermined intervals as agreed between the client, the architect and all contractors, before any works commence but once phasing of works has been agreed. These intervals may include the following: before demolition of any structure; after demolition of each structure; after installation of a spoil removal conveyor and/or other machinery to be located within a CPZ or GPZ; after initial excavations; post completion of excavations; pre-reinstatement of landscaping features; post-tree planting; post-final landscaping.

6.9.6. A written log of arboricultural site visits will be maintained by both the lead contractor and the retained arboricultural consultant.

## 6.10. Access Facilitation Pruning

6.10.1. It is not anticipated that any tree pruning should be required. Any tree pruning operations should first be agreed with a qualified arboriculturalist and approved in advance by the Local Planning Authority. Any such pruning should follow industry guidance as set out in *BS 3998: 2010 Tree Work - Recommendations*. All such works should be done by appropriately qualified arborists.

6.10.2. Tree works should be confined to the minimum crown reduction or crown lifting required to facilitate access.

**Russell Miller**

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# GLOSSARY

**AMS** Arboricultural Method Statement – a specification for works written by a qualified professional who understands the requirements of trees.

**CEZ** Construction Exclusion Zone – i.e. no construction access, even on foot, without prior consultation with a qualified arboricultural consultant.

**GRPA** Generic Root Protection Area – the RPA defined by a circle of diameter determined by *BS 5837:2012 Trees in relation to design, demolition and Construction – Recommendations.*

**GPZ** Ground Protection Zone – an area requiring temporary ground surfacing designed to avoid compacting the soil beneath.

**HPRPA** High Priority Root Protection Area – an area close to the tree likely to contain large, high priority roots.

**RPA** Root Protection Area – the **minimum** area that must be protected if a retained tree is to survive; i.e. to avoid unacceptable root damage the entire RPA must be protected from trenching, digging, compaction, spillage and other construction activity unless as specified in an **arboricultural method statement.**

**SSRPA** Site Specific Root Protection Area – the RPA determined by an arboricultural consultant to most likely reflect the true location of tree roots.