ARBORICULTURAL REPORT

1 Old Hall
Highgate
London

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Scope

The purpose of this report is to provide Arboricultural advice in relation to identifying the constraints of trees which are present on site and in neighbouring properties during development works to construct a garden room at the end of the garden space. Providing advice on how the trees could be impacted and protection measures to be implemented for the trees using the guidelines and principles of BS5837:2012.

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1 INTRODUCTION

1.1 Brief:

This report has been prepared at the request of Studio Tivoli the project architect on behalf of the site owners, to provide advice on how the trees present could be detrimentally impacted by construction activities to implement the proposed layout of the garden office during construction works. Identifying the constraints of the trees and providing advice on suitable tree protection measures to address this.

1.2 Qualifications and experience:

I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in **Appendix 1.**

1.3 Documents and information provided:

A plan of the proposed layout.

1.4 Relevant background information:

None.

1.5 Scope of this report:

This report is only concerned with trees that could be impacted by construction works to implement the proposed layout, and the measures required to provide protection for them as best prescribed in the guidance of BS5837: 2012 'trees in relation to design, demolition and construction'. Any issues regarding construction methods etc. is outside the remit of an Arborist and remedy should be sought with suitably qualified persons, for example builder, engineer etc. For the purposes of this report an Arborist / Arboriculturalist is someone who through training and experience has the knowledge to assess trees and their condition in a competent manner. Trees with a dbh of less than 75mm have not been included as per the guidance in BS5837:2012 or species considered to be shrub specimens.

2 APPRAISAL

2.1 Brief site description:

The site is the rear garden of the existing property which is well manicured and mostly laid to lawn. Flower beds are set on either side and the boundary is a brick wall that appears to have been present for many years. At the end of the garden is an area covered in a block paved surface, which also appears to have been present for a number of years. Adjacent to the property is another residential site and a church that has hard standing for pedestrian access and parking.

2.2 Condition of trees:

The trees appear to be in a healthy condition with no signs of pests or diseases normally associated with the species, as far as could be observed from public access in the church yard and the garden space. Trees in private gardens could not be inspected in any detail.

A more detailed analysis of the trees can be found in **Appendix 3**.

2.3 Suitability of tree for location and management requirements at present:

In my opinion the trees are considered suitable for their locations, I have not been made aware of any conflict with the trees and the properties.

No management works are considered necessary at this moment in time.

2.4 Potential effects of development on the trees:

To implement the planning permission being sought, the trees will not need to be removed. I suggest that the overhanging canopy of T5 is selectively lifted to 5m but pruning branches less than 10cm in diameter to achieve better clearance, this work will not impact on the amenity of the tree. No other tree surgery works are necessary.

The proposed garden office will occupy part of the RPA (Root Protection Area) of T5 as calculated using the formula in BS5837:2012, however, the existing boundary wall and hard surfacing need to be taken into account as these could have limited the root spread in this direction and more like the modified RPA as shown on the Tree Protection Plan in **Appendix 5**. Given that there is already a hard surface in the location for the proposed garden room it is unlikely that placing this structure in this location will have any negative impact on the tree, depending on how the foundation is installed. BS5837:2012 allows for a shallow based surface such as is used with structures like this and sheds, as long as no more than 20% of the RPA is occupied. In this case it is not and therefore this might be a feasible option to facilitate the base construction in a traditional manner.

Excavation works will need undertaken in a careful manner and in accordance with the hand dig method statement provided in **Appendix 3.** This will include the careful lifting of the block work currently present. If possible, the new base should be placed directly on top of this to avoid ground disturbance and further spread the load. In either case a non-porous membrane will need to be laid down to prevent toxins leaching into the soil during the formation of the base. If excavation works to install the base are to be used, then this will need to be made as shallow as possible. If roots larger with a diameter of 2.5cm or less are encountered, then these will be pruned clear and suitably covered. If roots larger than this are found the supervising arborist will discuss with the tree officer the option of root pruning, but if this is not an option then an alternative foundation for the structure will be used. An above ground system involving screw piles the product and installation method will be confirmed and agreed prior to undertaking works on site. All of these type of systems are similar and involve individual piles with a small diameter being screwed into the ground, with minimal equipment used and completed in a short amount of time. This means that less movement in the RPA is required and minimal ground disturbance. Where access over the RPA will be needed to undertake this, suitable ground protection will need to be in place to prevent the soil from becoming compacted. Where possible the existing hard surface will be left in place and utilised with the route to the construction zone limited to the areas outside of this protected zone. Protective fencing will be set up in the locations shown on the tree protection plan to define this exclusion zone and prevent construction activities from extending into it. Any services facilitating this building will either have to be installed above ground to prevent the need for excavation in the RPA, or service trenches will need to be carefully opened by hand digging or an air spade to work around any roots encounter, which is feasible. Alternatively, a trenchless method can be used, but is likely to be a bit excessive in this case.

The above demonstrates that consideration into the tree constraints in relation into the construction and design of the garden room has been considered, and that there are various options that can be implemented to work around the constraints of the trees. In my opinion and based on the observations made on site it is feasible to construct the proposal without detrimentally impacting on the trees.

It is important to understand that prior construction works commencing on site that the ground within the RPA is suitably protected and where access in this protected area is not required, fencing is set up to prevent access. Details of the type of ground protection in relation to the traffic crossing it and other protection measures that need to be considered can be found in **Appendix 3**.

The main risks this development proposal presents to the trees will be via indirect actions from construction activities such as, inconsiderate material storage etc. However, this can be addressed by careful planning of work procedures and installing protection fencing, ground protection etc. as required.

There is limited space on site for accommodating construction works and material storage outside of the RPA, therefore it will be imperative that the RPA (Root Protection Area) is identified with suitable ground protection. The site manager will need to be aware of the protection measures needed and ensure access and material storage are managed around this to prevent conflict with the trees.

The site manager will need to confirm the locations of material storage, access for construction activities onto site etc. and how this will be managed around the protection of the trees, demonstrating how the protective areas will be avoided for this purpose and ensuring the ground is protected always until the build is finished. There is limited space on site, so this will need to be carefully planned to ensure the trees to remain are not detrimentally impacted.

Details of ground and other protection measures are provided in the method tree protection method statement in **Appendix 3**.

In this case the potential impact of the proposal in relation to the trees that could be impacted is moderate, with specific measures being able to be implemented to ensure that construction pressures do not adversely affect their health or longevity.

The trees can be sufficiently protected by following the principles and measures contained within this report and those within the method statement in **Appendix 3**.

2.5 Potential effects of the trees to be retained on the development:

Leaf litter could become a problem if it causes drains or gutters to become blocked, that could impact in other ways on the building, or if left on access surfaces where they could become a slip hazard. To address this gutter guards could be installed to prevent build-up of leaf litter that could become a problem, or regular cleaning of the gutters employed. Regular clearing of falling leaves on the access route, especially in times of wet weather will address any potential slip hazards caused by this seasonal occurrence.

Shadow cast caused by the trees is unlikely to be of any great concern, given that this will not be a habitable space and used occasionally. Any shadow cast is likely to fall over the top of the building or away from it.

The conflicts normally encountered with having buildings near to trees can be addressed with scheduled maintenance.

2.6 Proposed solutions to safeguard the trees to remain during construction works:

2.6.1 Protective fencing

Protective fencing will be placed in the locations shown on the tree protection plan in **Appendix 5** prior to works commencing on site. The fencing will be retained at times. Access beyond the fence line will only be allowed with good reason and with the tree officer's permission. It is important to ensure that construction activities do not occur beyond the extents of the protective fence line.

2.6.2 Services

No details relating to service runs have been provided to me. Careful consideration will be required as to where service runs are to be placed to determine if they can be placed above ground or involve as little excavation in the RPA as possible. If excavation is required in the RPA the trenches will be opened using hand digging / air spade. Alternatively, trenchless techniques to install the services will be used and approved by the local authority. The project architect will confirm locations, installation method and any arboricultural methodology that needs to be considered to achieve this prior to them being installed to ensure the potential impact on the trees is to a minimum.

2.6.3 Site facilities and material storage

Care will have to be taken to identify the type of materials required and the access of any machinery, vehicles or plant needed to move them, as these can cause collision damage to aerial parts of the trees as well as soil contamination or compaction. At no point will materials be stored within the RPA of the trees unless suitable protection measures have been put in place. The site manager will provide details on this aspect of the project if felt necessary by the local authority, but as long as the RPA is suitably protected then this should not present a problem.

2.6.4 Works within RPA

The project engineer / architect will provide details on what foundation system will be used. If screw piles are to be utilised the position of them will be initially excavated by hand to a depth of 600mm to see if they will conflict with roots. If so then the position will be removed to avoid conflict. If trenches for services are required as well, the same precautionary measures will be taken, with an arborist supervising. Ground protection will be installed prior to construction works commencing to address potential soil compaction issues. Details can be found in **Appendix 3**.

2.6.5 Site supervision

The site manager will provide a timetable of works on the site, listing all of the key stages of development, starting with the placing of protection fencing / hoarding around the trees, establishing site facilities, through to completion of the site. Arboricultural supervision will take place prior to works commencing on site to ensure protection measures are understood and implemented with a pre-commencement meeting with the site manager and other relevant personnel. Site supervision will be undertaken by a suitably qualified arborist once at the start of the project, one mid-way through and once towards the end. If this is not to the tree officer's satisfaction, then supervision visits will be on a monthly basis until the completion of the project. **Arboricultural supervision will be present during excavation works in the RPA.**

Prior to work, all key personnel connected with the site will be briefed by an arborist with regard to the importance of the tree protection and methods of ensuring that the trees are protected during the construction period. A record of all arboricultural related site meetings will be made, signed off and available for inspection by the local authority if required.

Any personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintaining them and not breaching them in any way.

2.6.6 Site completion

Once work has been completed, an arborist will inspect the trees and comment on their condition and prescribe any mitigation works required. The tree protection measures are expanded upon in **Appendix 3**. Any proposed landscaping scheme or works will be discussed with the supervising arborist to ensure that this will not conflict with the trees or the protective areas in any way.

3 CONCLUSIONS

- To implement this development the trees will not need to be removed. To facilitate more clearance, the overhanging canopy of T5 will be crown lifted to 5m. This will be achieved by selectively pruning low branches with a diameter no greater than 10cm. This work will not impact on the trees amenity and will be undertaken in accordance with BS3998:2010.

- There is currently hard surfacing in the location where the garden room is proposed, so placing of a structure in this position will not have any adverse impact on the tree, as long as the foundation for it is installed in a careful manner.

- Less than 20% of the total RPA of T5 will be occupied by the structure and there is provision in BS5837:2012 that allows for shallow bases to be installed in the RPA. Alternatively, there are other systems that can be used involving screw piles and similar that reduce the excavation in the RPA further and have been used on other sites to achieve similar foundations.

- It is possible that the rooting morphology has been deflected by the existing wall and hard surfacing, so that it is feasible the proposal will not have any risk of impacting on roots.

- Protective fencing will be set up in the locations shown on the tree protection plan in **Appendix 5**, to stop construction activities extending into the RPA where it is not required.

- There is limited space on site for material storage outside of the RPA, therefore the site manager will need to demonstrate how the trees will be worked around in relation to this aspect of the construction works on site. This can be achieved by following the protection measures provided in the method statement in **Appendix 3**.

- The trees to be retained can be adequately protected from construction pressures by implementing and adhering to the protection measures provided in the method statement in **Appendix 3**.

4 OTHER CONSIDERATIONS

4.1 Trees subject to statutory controls:

I am not aware of any tree preservation orders or other restrictions relating to the trees. I suggest that the local authority is contacted to confirm this and kept updated with any proposed tree works including root pruning so as to form a good working relationship and to prevent misunderstandings or contravention of protection measures. This statement is meant for readers of this report as an advisory, to make sure they make the relevant checks so as not contravene any protection status the trees may have.

Andrew Day HND Arb
For Andrew Day Arboricultural Consultancy Ltd.

Brief qualifications and experience of Andrew Day

I hold a Higher National Diploma in Arboriculture. I have been working in the field of arboriculture for approximately 10 years, spending time as a contracting arborist undertaking all aspects of practical arboriculture both in the UK and Europe. I have also worked within local government as a tree officer working for a variety of local authorities. I have a broad experience of both the practical and theoretical aspects of arboriculture having worked within the public and private sector.

1. Qualifications:

Higher National Diploma in Arboriculture (1996)

NPTC (National Proficiency Training Council) units 20, 21 and 22

Lantra professional tree inspection certificate

2. Practical experience:

Prior to establishing my company, I worked for a private Arboriculture company for three years undertaking many practical aspects of Arboriculture. I moved on from this to become a local authority tree officer for five years, my duties included consultation on planning matters with regard to trees, advice to the general public, managing the council's tree stock and liaising with other professionals on Arboricultural related issues. I was approached by an established tree contracting and consulting company in Essex to develop and run the consultancy department as their principle consultant which I did for three years.

SITE PHOTOGRAPHS

Showing T1 – T3 and the boundary wall from within the garden

Showing T3, t4, T5 – T9 from within side the garden

Showing the existing hard surface in the RPA of T5 and the minor branches that will be lifted to 5m

SITE SPECIFIC INFORMATION

Explanatory Notes

Tree Survey

Tree Protection Method Statement and Protection Criteria

Hand Dig Method Statement

Informatives for protection fencing

Arboricultural Considerations notice for site hut and inducted personnel

Explanatory Notes

Measurements/estimates: All dimensions are estimates unless otherwise indicated. Measurements taken with a tape or clinometer are indicated with a '*'. Less reliable estimated dimensions are indicated with a '?'.

Species: The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to identify a particular tree quickly and accurately without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicate it with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.

Height: Height is estimate height to the nearest metre.

Spread: The maximum crown spread is visually estimated to the nearest metre of the total crown spread diameter. It should be noted that the crown of some trees can be one side, however this usually indicated within the report.

Diameter: These figures relate to 1.5m above ground level and are recorded in centimetres. Estimate measurements are banded 0-10cm, 11-20, 21-30 etc. If appropriate, diameter is measure with a diameter tape. 'M' indicates trees or shrubs with multiple stems. 'AV' indicates average and is the average of two stems when dealing with twin stem trees.

Estimated Age: Age is assessed as **M** mature (last one third of life expectancy), **EM** early-mature (one third to two thirds life expectancy) and **Y** young (less than one third life expectancy).

FSB: First significant branch from ground level (direction shown on tree protection / constraints plan)

SULE: This is the estimated Safe Useful Life Expectancy of the tree. Trees can live longer than this value but can pose a risk to persons or property.

RPR: Radius of root protection area around the tree /group

RPA: Root protection area for tree or group

BS 5837 2012 - On the basis of this assessment, trees can be divided into one of the following categories:

A - Trees whose retention is most desirable, High category
B - Trees where is desirable, Moderate category
C - Trees which could be retained, Low category
U - Trees that cannot realistically be retained; Fell category

Tag	Name	Age	Diameter (mm)	Height (m)	Crown Hgt (m)	FSB Hgt (m)	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR (m)	RPA Area (m)
T1	Tilia X europaea (Common Lime)	M	650	15(6)	6	6	4	3	3	3	20+	These trees are in third party ownership.	B3	7.8	191.16
T2	Tilia X europaea (Common Lime)	M	650	15(6)	6	6	4	3	3	3	20+	These trees are in third party ownership.	B3	7.8	191.16
T3	Tilia X europaea (Common Lime)	M	650	15(6)	6	6	4	3	3	3	20+	These trees are in third party ownership.	B3	7.8	191.16
T4	Prunus avium (Wild Cherry)	M	650	14(6)	6	6	4	4	2	3	20+	These trees are in third party ownership.	C1	7.8	191.16
T5	Fagus sylvatica 'Purpurea' (Copper Beech	M	1050	18(7)	7	6	5	6	7	5	20+	This tree is in third party ownership.	B2	12.6	498.82
T6	Prunus spp	EM	150	7(3)	3	2	4	3.5	3.5	3.5	20+	Limited inspection as this tree is in third party ownership and no access.	C1	1.8	10.18
T7	Betula pendula (Silver Birch)	M	150	10(3)	3	3	3.5	2.5	3	2.5	20+	Limited inspection as this tree is in third party ownership and no access.	C1	1.8	10.18
T8	Carpinus betulus (Hornbeam)	M	200	9(4)	4	3	4	3.5	3	3.5	20+	Limited inspection as this tree is in third party ownership and no access.	C1	2.4	18.1

Tag	Name	Age	Diameter (mm)	Height (m)	Crown Hgt (m)	FSB Hgt (m)	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR (m)	RPA Area (m)
T9	Betula pendula (Silver Birch)	M	200	9(4)	4	4	4	3.5	3	4	20+	Limited inspection as this tree is in third party ownership and no access.	C1	2.4	18.1
T10	Acer spp	Y	100	3(1)	1	1	1	1	1	1	20+	No works required at present.	B3	1.2	4.52
G1	Quercus ilex (Holm Oak)	M	300	8(4)	4	4	4	3	3	3	20+	Limited inspections as these trees are in third party ownership and no access.	B3	3.6	40.72

Method Statement for Tree Protection Measures

PROJECT: 1 Old Hall, Highgate, London

CLIENT: Studio Tivoli Architects

1.1 Brief

Provide protective measures specification for trees to be retained using the guidelines and principles prescribed in BS5837: 2012 'trees in relation to design, demolition and construction'.

1.2 Protective measures and Site Supervision

An important factor in providing protection for the trees during the construction works is the chronological order in which development tasks are undertaken. Before work continues on site, the following issues will be addressed and submitted to the council for approval.

- A suitably qualified arborist will be retained to oversee tree protection measures where required and liaise with the tree officer as required. The contact information of this arborist will be made available to the council tree officer prior to works starting on site.

- Any excavation work in the RPA to excavated the base in a traditional manner, or if site screw piles are to be used the pile locations will be initially started using hand tools, with the supervising arborist overseeing and recording any root presence.

- The foundation design for the building will be suitable to address any potential influence that the trees may have on them. Location of services and details of their installation will have been provided, with any arboricultural protection measures or methodologies of working programmed in the works schedule and approved by the council.

- The foundation design for the garden room will be approved prior to works commencing on site.

- A pre- commencement meeting with a suitably qualified arborist will take place with the site manager and other relevant site personnel, to debrief them on the importance of the protection measures and to assist in setting up of the ground protection etc. before work commences on site.

- A schedule of arboricultural site supervision will be formulated at the pre-commencement meeting and be provided to the council by the site manager once this plan of visits has been set. It is then the responsibility of the site manager to ensure the arboricultural supervision visits are booked in and undertaken at the relevant times.

1.2.1

A pre-commencement inspection by the supervising arborist will take place to ensure the protective measures are understood and a schedule of arboricultural site monitoring is formulated at the start of the project, this will consist of a visit by a suitably qualified arborist once at the start of the project, once mid-way through and once at the end. If this is not to the council's satisfaction, then visits arboricultural visits will take place once a month for the duration of the project. A log of these visits and any actions required will be available to the council on request and kept on site.

All personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintain these and ensuring that they do not cause any damage to the trees.

1.2.2

Protective fencing will be a plastic mesh style to denote the area where construction activities are not permitted, but to still allow the family to have access into the garden space. If this is not permitted by the council then the protective fencing will be as shown in **diagram 1** or similar that demonstrates that it is fit for purpose and will be placed in the locations as shown on the tree protection plan in **Appendix 5**, prior to works commencing on site.

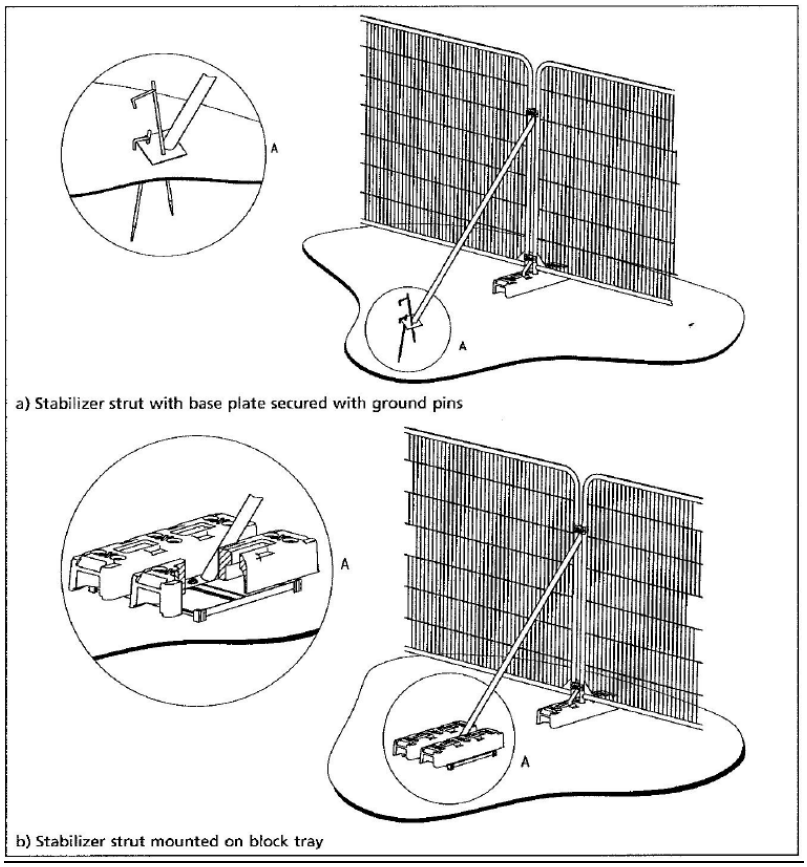
The informatives provided will be attached to the fencing to highlight its importance at a height of 1.5m and at 5m intervals along the line of fencing, or in locations that can demonstrate they are clearly visible to identify the purpose of the fencing in relation to the project

1.2.3

Where access is required within the RPA, ground protection will be in place, this will be installed as set out in 1.7 before access into the protected area is allowed.

The placing of tree protection measures works within the construction timescale will not be altered and it is re-emphasised that this is to take place prior to any other activities.

Diagram 1



1.3 Forbidden activities within RPA

1.3.1 Within the root protection area, the following activities will be prohibited, unless suitable ground and other protection measures are in place, given the limited space available.

No storage of chemicals or other substances likely to leach and cause harm to the trees to be stored.

No storage of heavy plant or materials likely to cause further soil compaction. The piling rig will sit outside the RPA at all times.

No ground disturbance works, apart from what has been approved by any planning permissions or specifically from the council.

No activities that could indirectly affect the trees such as bonfires etc.

1.3.2 No ground disturbance works apart from those granted in the planning permission to install the screw piles or similar is to be undertaken within the confines of the RPA without the written permission of the local authority.

The protected area is not to be breached at any time, unless the local authority has granted permission and a qualified arborist has been consulted and supervises any work activities that need to take place.

1.4 Storage of chemicals / mixing of materials

1.4.1 Storage of chemicals will be placed in a sealed bund / area, with no discharge allowed onto the ground or watercourses. The area containing these materials will have an impervious surface and stored **if possible** 10m away from the RPA. If accidental spillage of chemicals or other damage to the trees takes place the local authority is to be notified as soon as possible and a suitably qualified arborist is consulted as to the best actions to take to mitigate any damage that may have occurred as a result of the accident and these works to be undertaken to mitigate the situation as soon as possible.

1.5 Works in the RPA

1.5.1 **No excavation / ground disturbance works will take place within the RPA unless permission is granted by the local authority to do so. Where excavation works are needed in the RPA to form the base in a traditional manner, this will be completed using hand tools and lined with a non-porous membrane. If a screw pile system is to be used, the locations of the piles will initially be excavated to a depth of 600mm using hand tools, in accordance with the arboricultural hand dig method statement provided. This will be strictly adhered to. This includes the opening of any service trenches if required.**

1.5.2 If roots with a diameter of 2.5cm or less are encountered, these will be pruned clear. If larger roots are found then a discussion with the tree officer will be had about root pruning. If root pruning is not permitted then an alternative foundation system will be used, or pile holes manoeuvred to avoid conflict.

1.5.3 The foundation design for the building will demonstrate how it is fit for purpose to ensure that the trees will not indirectly impact on the structure, resulting in pressures to remove the trees in the future.

1.5.4 Where access across the RPA to implement construction, suitable ground protection will be laid down as detailed in section 1.7 below.

1.5.5 All excavation works that are required in this protected area, will have the permission from the council approved for this type of operation, and the hand dig method statement provided strictly adhered to at all times.

1.6 Material storage / site parking

1.6.1 Particular attention will be made to the type of materials to be stored and the type of machinery needed to move them, ensuring that sufficient protection measures in accordance with this method statement and space are provided to prevent damage to the trees to remain. The details outlined in 1.4 above will be adhered to.

1.6.2 **At no point will plant or materials be allowed to be parked or stored within the RPA unless suitable protection is in place. This will be strictly policed by the site manager**.

1.7 Ground Protection

1.7.1 Where access across the RPA is required, the following ground protection measures will be implemented as required.

For pedestrian traffic:

A single thickness of scaffold boards placed on top of a scaffold frame so as to form a suspended walkway (similar to diagram 2), or boards laid on to a geotextile membrane with a layer of wood chips 100m in thickness.

For pedestrian operated plant, up to 2 tonnes:

Interlinked ground protection boards of plywood or similar at least 2.5cm thick, laid onto a geotextile membrane on a bed of wood chip 150mm in depth.

For wheeled or tracked traffic exceeding 2 tonnes gross weight:

Metal tracking designed and fit for purpose, pre-cast concrete slabs or similar, laid to an engineering specification on a compression resistant layer e.g., wood chips that will likely spread the weight of the load and prevent compression of the soil underneath.

1.7.2 **AT NO POINT WILL THE GROUND WITHIN THE RPA BE LEFT UNPROTECTED IF ACCESS IS REQUIRED IN THIS AREA**.

1.8 Completion

1.8.1 Once all the construction activities on the site have been completed and a suitably qualified arborist will assess the condition of the trees and liaise with the local authority accordingly if any works are considered necessary. Any proposed landscaping works will be discussed with the supervising arborist to ensure there could be no detrimental impact on the trees.

2 HAND DIG METHOD STATEMENT

PROJECT: 1 Old Hall, Highgate, London

2.1 The area to be excavated will be inspected by a professional arborist to assess the likely proximity of root activity and concentration prior to the commencement of any works. All relevant authorized personnel to be informed and required permissions gained before work commences.

2.2 If hand digging is not possible/practicable a method of excavation will be agreed and undertaken by a suitably qualified person for example air spading or a competent digger operator etc., in the presence of a qualified arborist.

2.3 During excavation great care will be taken to minimize damage to retained roots, including the bark around the roots.

2.4 All roots greater than 25mm diameter should be retained and worked around. Where clumps of smaller roots (including fibrous roots) are found these are to be retained.

2.5 Roots with a diameter in excess of 25mm must not be severed without permission from an Arborist.

2.6 If roots are encountered, the Arborist must conduct the root pruning and inform the relevant person to suggest mitigation works to the tree(s) if required. If severance is unavoidable roots must be cut back using a sharp tool, leaving the smallest wound possible.

2.7 If there is a possibility of infection being passed from one specimen to another, tools will be sterilized in an appropriate method to reduce the risk of cross contamination.

2.8 When backfilling an inert granular material mixed with topsoil or sharp sand (not builder's sand) is to be used around the retained roots. Unless an alternative backfill substrate has been agreed with in writing by the appropriate authorized personnel.

2.9 If roots are to be left exposed for a period of longer than 1 hour (dependent on weather conditions), then a covering of dampened Hessian or similar material is to be used to cover the exposed roots. Any changes to this practice are to be authorized by a qualified arborist.

2.10 All levels are to be returned to the original plane after any excavation unless specific design and relevant permission has been authorized.

2.11 A qualified Arborist is to be on site to supervise during any operations within the protection zone.

ANDREW DAY ARBORICULTURAL CONSULTANCY LTD

REDUCING COSTS BY DELIVERING PRACTICAL SOLUTIONS

TREE PROTECTION ZONE

DO NOT CROSS WITHOUT PERMISSION

BREACHING THIS BARRIER CAN RESULT IN THE FOLLOWING:

- **SHUT DOWN OF THE JOB**
- **FINANCIAL IMPLICATIONS**
- **CRIMINAL PROCEEDINGS**

ARBORICULTURAL SITE CONSIDERATIONS

THIS NOTICE IS TO BE DISPLAYED IN THE SITE OFFICE OR A SUITIBLE LOCATION WHERE IT IS CLEARLY VISIBLE AND ISSUED TO ALL PERSONNEL INDUCTED ONTO SITE

The following site considerations must be observed at all times during the development process, from site preparations through to completion.

- The protected area of the RPA must be regarded as sacrosanct and not breached except where to implement the planning permission granted, without prior consultation with either the local planning authority or the supervising arborist.
- Ground protection must not be lifted or removed without prior consultation with either the local planning authority or the supervising arborist.
- Damage caused to ground protection must be reported to the site manager to ensure suitable repair or actions are taken.
- No materials, chemicals, machinery, or vehicles to be stored within the RPA (root protection area) as defined on the tree protection plan and on site by fencing and ground protection.
- No materials etc. must be rested against or machinery chained to trees.
- No pruning of trees may be undertaken by anyone other than a qualified arborist and approved by the supervising arborist and local authority tree officer.
- Any physical damage caused to a tree to be retained must be reported to the site manager immediately so that suitable remedial works can be commissioned without delay.
- Builder's sand (which contains high levels of salt) must not be used to back fill excavations within or in close proximity to tree roots, as it has a toxic effect and can cause root desiccation. Sharp sand must be used under such circumstances.
- Soil contaminants such as concrete mixings, diesel oil and vehicle washings must be kept suitably contained, preferably within bunded areas. Any spillages within 2m of a fenced area must be reported to the site manager and supervising arborist immediately so that suitable mitigation works can be commissioned.
- Fires must not be lit in positions where their flames can extend to within 5m of foliage, branches, or trunks. Wind direction and size of fires will impact on this.
- Notice boards, telephone cables or other services etc. must not be attached to any part of a tree.

Remember the tree officer can turn up at any time or neighbours may report any poor practice or threats to the trees.

Site Personnel Contact Information

As far as I am aware the only personnel associated with this site at the time of writing this report is the project architect. Table 1 shows the contact details of the project architect who is to be contacted if any enquires relating to this project need answering.

Table 1

Name	Relation to Site	Contact Details
Studio Tivoli	Project Architect	07584 239748

LIMITATIONS AND QUALIFICATIONS

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Unless specifically mentioned the report will only be concerned with ground inspections. No below ground inspections will be carried out without prior confirmation from the client that such works should be undertaken. This report is for the purposes of identifying the potential impact construction activities could have on the trees and is not a health and safety assessment of the trees. A cursory assessment of the trees health and condition will be recorded, but this is not to be taken as a detailed assessment of its structural condition, health, and management recommendations in relation to this. A separate tree inspection regime focusing on these aspects will need to be undertaken if this is required.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available during the inspection process. No checking of independent data will be undertaken, Andrew Day will not be responsible for the recommendations within this report where essential data are not made available or are in accurate.

This report will remain valid for one year from the date of inspection but will become invalid if any tree works not recommend within the report are undertaken, soil levels around the trees are altered in any way, and extreme weather conditions are experienced or if any building works that could impact on the tree are undertaken or not disclosed.

If any of the above occurs, then it is strongly recommended that a new tree inspection is carried out.

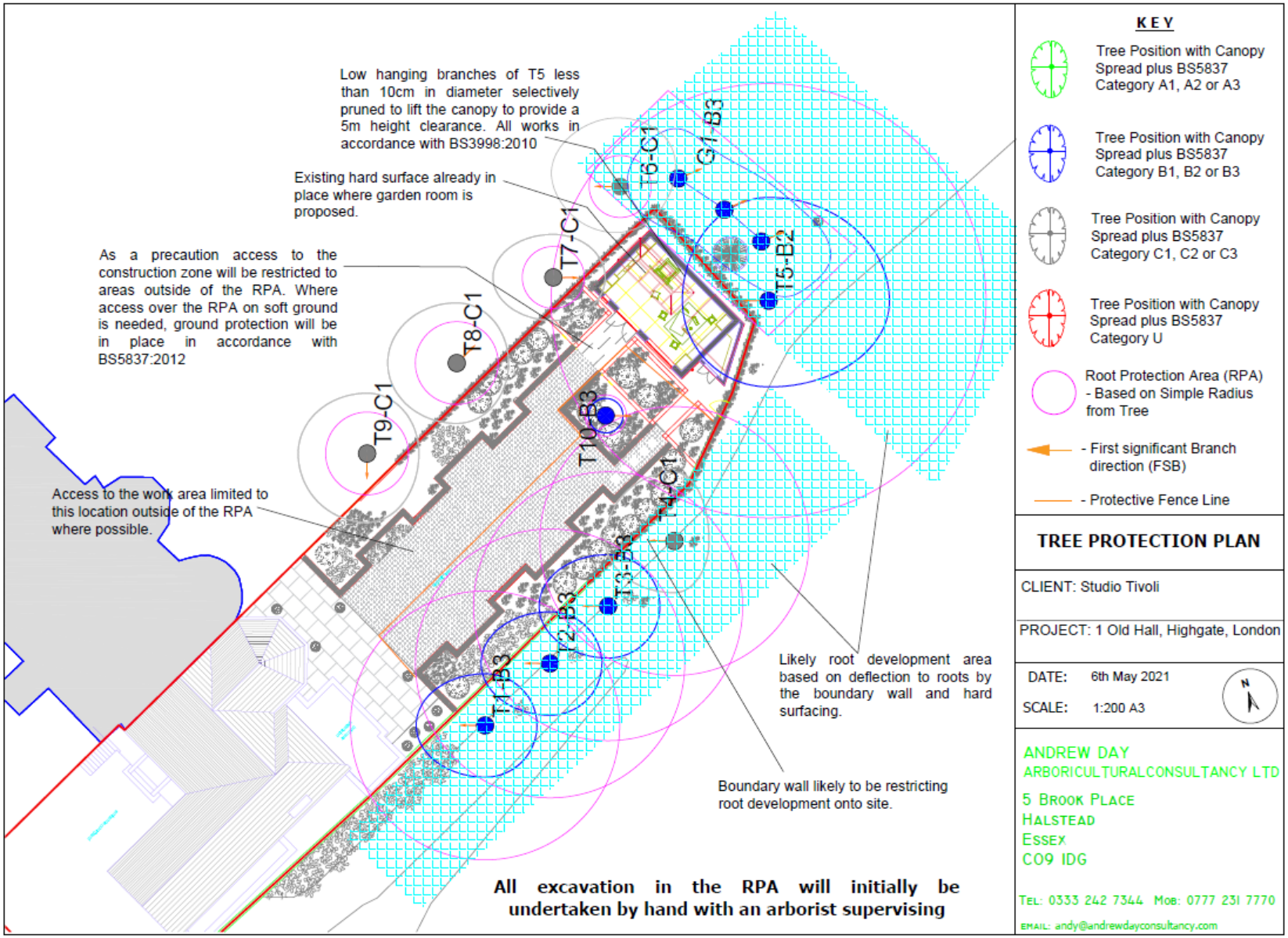
It will be appreciated, and deemed to be accepted by the client that the formulation of the recommendations for the management of the trees will be guided by the following:

1. The need to avoid reasonable foreseeable damage
2. The arboricultural considerations – Tree safety, good Arboricultural practise and aesthetics.

The client is deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where time constraints or the client limits sources, this may lead to an incomplete quantification of the risk.

TREE PROTECTION PLAN

(This plan is for reference only; please refer to the separate A3 plan for scaling if required)


Low hanging branches of T5 less than 10cm in diameter selectively pruned to lift the canopy to provide a 5m height clearance. All works in accordance with BS3998:2010
Existing hard surface already in place where garden room is proposed.
As a precaution access to the construction zone will be restricted to areas outside of the RPA. Where access over the RPA on soft ground is needed, ground protection will be in place in accordance with BS5837:2012
Access to the work area limited to this location outside of the RPA where possible.
Likely root development area based on deflection to roots by the boundary wall and hard surfacing.
Boundary wall likely to be restricting root development onto site.
All excavation in the RPA will initially be undertaken by hand with an arborist supervising
T1-B3
T2-B3
T3-B3
T4-C1
T5-B2
T6-C1
G1-B3
T7-C1
T8-C1
T9-C1
T10-B3
KEY
Tree Position with Canopy Spread plus BS5837 Category A1, A2 or A3
Tree Position with Canopy Spread plus BS5837 Category B1, B2 or B3
Tree Position with Canopy Spread plus BS5837 Category C1, C2 or C3
Tree Position with Canopy Spread plus BS5837 Category U
Root Protection Area (RPA) - Based on Simple Radius from Tree
- First significant Branch direction (FSB)
- Protective Fence Line
TREE PROTECTION PLAN
CLIENT: Studio Tivoli
PROJECT: 1 Old Hall, Highgate, London
DATE: 6th May 2021
SCALE: 1:200 A3
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