By Appointment to
Her Majesty The Queen
Tree Surgeons
The F.A. Bartlett Tree Expert Co. Ltd

Bartlett Consulting

DEVELOPMENT SITE IMPACT ASSESSMENT & METHOD STATEMENT

OUR REF: JL/170266R/sh

DATE: Wednesday 7th March 2018

CLIENT:	Aanya Property Developments Ltd.
SITE ADDRESS:	2B Courthope Road Hampstead London NW3 2LB
DATE OF SITE VISIT:	Monday 29th January 2018
PEOPLE PRESENT:	Mr. M. Reed, Bartlett Consulting
REPORT COMPLETED BY:	Mr. J. Lawson BSc, CBiol, MRSB

SUMMARY

The following report evaluates the potential direct and indirect impacts of the proposed development and site design on one roadside tree adjacent to the site at 2B Courthope Road, Hampstead NW3 2LB, using the criteria and guidance set out in the British Standard 5837: 2012 *Trees in Relation to Design, Demolition, and Construction – Recommendations.*

The wider amenity and landscape values of the tree, as well as its useful life expectancy is determined, and as a result, a category grading is given to the tree for retention using the "Cascade Chart for Tree Quality Assessment"

A Tree Constraints' Plan has also been drawn and appended to the report. The Plan illustrates the tree location, their above and below ground constraints, and, if possible, its spatial relationship to the proposed development.

This report will recommend design modifications, specialist construction techniques or mitigation options deemed necessary, due to site operations, which potentially will have a direct, and/or indirect, impact on the retained tree(s). Included also are Arboricultural Method Statements, which identify the precise location of physical tree protection barriers and other tree protection measures, as well as providing the appropriate specification of tree protection. The Method Statements also include, if required, recommended planning and working methodologies for associated construction operations from an arboricultural perspective.

Illustrating the discussions within the report are accompanying Tree Constraint and Tree Protection Plans.

TABLE OF CONTENTS

1.0 SCOPE OF REPORT

1.1 Survey Brief

To survey one street tree on land adjacent to the site of 2B Courthope Road, London NW3 2LB, which has the potential to influence as well as constrain the proposed development of the site and consequently must be considered as a material consideration within the planning process.

To provide a report and recommendations suitable for the submission and progression of a detailed design proposal by discussing the constraints posed by the tree, and the development in relation to that tree through an Arboricultural Impact Assessment, and to give recommendations for tree management and protection through necessary Method Statements.

1.2 Background

The potential for the development (house extension) of the site at 2B Courthope Road is currently being considered.

Bartlett Consulting has been instructed to undertake a tree survey in accordance with British Standard 5837: 2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*, and produce an Arboricultural Impact Assessment and Method Statement to guide and inform the development project, and to protect and preserve the trees of merit and thereby conserve the local landscape.

1.3 Report References

As a progressive company, we keep abreast of research data relating to arboriculture. All observations, recommendations and works are based on current industry standard reference material and extensive FA Bartlett research findings, derived from the company's own facilities at the University of Reading, as well as in Charlotte, North Carolina, in the USA. A selection of pertinent items is shown in Appendix 2.

Our Arboricultural Impact Appraisal has evolved from industry material including the following:

· O'Callaghan & Lawson (1995) *Trees and Development Conflicts: Importance of Advanced Planning & Site Control in Tree Preservation Plans*
· Matheny & Clark (1998) *Trees and Development a Technical Guide*
· BS 5837: (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations*
· BS 3998: (2010) *Tree Works - Recommendations*
· National Joint Utilities Group (2007) Publication Volume 4: Issue 2 *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees*
· Town & Country Planning Act (Tree Preservation) (England) Regulations 2012
· National House Building Council Standard, Chapter 4.2 (2018) – *Building near Trees*

F.A Bartlett's long arboricultural expertise is used to interpret these references for practical application to the site and the trees which are the subject of this report and to provide the most appropriate advice and guidance for sound tree health care and the achievement of the development proposals.

1.0 SCOPE OF REPORT (continued…)

1.3 Report References (continued…)

Bartlett Consulting have been provided with the following plans prior to the site visit & tree survey, as drawn by Material Architects. They aided the report writing and the production of the Tree Constraints' and Tree Protection Plans.

- 2 Courthope Road, London – Existing Floor Plans (Dwg. No. 1200 – P1) and Proposed Floor Plans (Dwg. No. 0200 – P1) dated February 2018, and Proposed Front Elevation & Section AA (Dwg. No. 1300 – P1) dated March 2018.

1.4 Report Limitations & Methodology

This report is restricted to those trees detailed within the Survey Schedule and illustrated on the attached Tree Constraints' Plan (TCP) and Tree Protection Plan (TPP). Both plans are illustrative of the discussions within the report and based entirely on drawings previously provided to Bartlett Consulting and detailed above. Both the TCP and TPP can only be used for dealing with the tree issues related to the proposals and all scaled measurements must be checked against the original submission documents and confirmed on site.

The tree subject to the survey has been referenced and numbered, colour-coded and categorised for amenity and life expectancy, as per the British Standard guidance and shown on the plan key. Trees to be removed are identified by the broken line representing the tree canopy and crown spread.

The tree was not climbed at the time of the tree survey. Tree dimensions were recorded using hand tools such as a diameter tape, a laser range finder (distometer), and a measuring tape when access was possible. A "sounding hammer" and binoculars, as well as other tools, were used to assess the tree in more detail where necessary, and species identification as well as age range and vigour were recorded within the tree details.

The statements, findings and recommendations made within this report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the trees after the date of this report, nor any damage whether physical, chemical or otherwise.

Bartlett Consulting cannot accept any liability in connection with the above factors, nor where recommended tree management is not carried out in accordance with modern tree health care techniques, within the timeline proposed.

All observations were made from within the boundaries of the site and adjacent public land.

This report does not deal with issues relating to subsidence or heave in relation to any built structures and surrounding vegetation.

The contents of this tree report are only valid for one year. Such findings will become invalid if any building works are undertaken; soil levels are altered or tree work undertaken. If there are any such alterations made, it is recommended that the tree survey or report be updated.

1.0 SCOPE OF REPORT (continued…)

1.5 Assessment of Ecological Status of Site & Potential Constraints

Following the site visit and tree survey, we believe that there is no vegetation on site with potential for wildlife and ecological associations for the site and only limited potential for the roadside Lime tree subject to the survey. Ecological associations are considered predominantly to be limited to nesting birds.

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000, provides statutory protection to birds, bats, insects and other species that inhabit trees, hedgerows, or other associated vegetation.

All trees must be thoroughly and properly assessed for nesting birds prior to the commencement of any recommended tree works.

2.0 TREE PRESERVATION ORDER & CONSERVATION AREA STATUS

Both the Town & Country Planning Act (Tree Preservation) (England) Regulations 2012 and the Town & Country Planning Act 1990 (as amended) provides legislative protection for trees within England.

An enquiry was conducted by Bartlett Consulting on 28th February 2018 with the London Borough of Camden Council using the interactive mapping service found on their website.

2.1 Tree Preservation Order (TPO) Status

We understand that the Council's 'street tree' is not subject to a Tree Preservation Order (TPO).

2.2 Conservation Area (CA) Status

The site and adjacent land is located within the designated Mansfield Conservation Area. As such, the 'street tree' is protected by virtue of its location within a designated conservation area.

2.3 Development Implications

The street tree must not be damaged by any works, etc.

3.0 GENERAL TREE & SITE DETAILS

3.1 Weather Conditions at Time of Survey

The weather at the time of the site visit was dry and clear suitable for tree surveying.

3.2 Local Landscape and Amenity Evaluation

The site is surrounded by residential properties and commercial premises and is situated in the suburban area of Hampstead. The built environment surrounding the site is comprised of mostly residential properties.

The natural landscape around the site is limited to gardens to the front and rear of the properties and the immature, pollarded street trees that, collectively, contribute to the arboreal character and amenity of the locality.

The pollarded Lime tree near to the site, together the other street trees, provide a valuable greenspace in the locality.

3.3 Underlying Soils

(Ref: British Geological Survey materials © NERC [2018] – Website data as of 27/02/2018)

Using the British Geological Survey 'Geology of Britain Viewer' it has been determined that the underlying geology is:

- Bedrock: London Clay Formation: Clay, Silt & Sand.

- Superficial Deposits: None recorded.

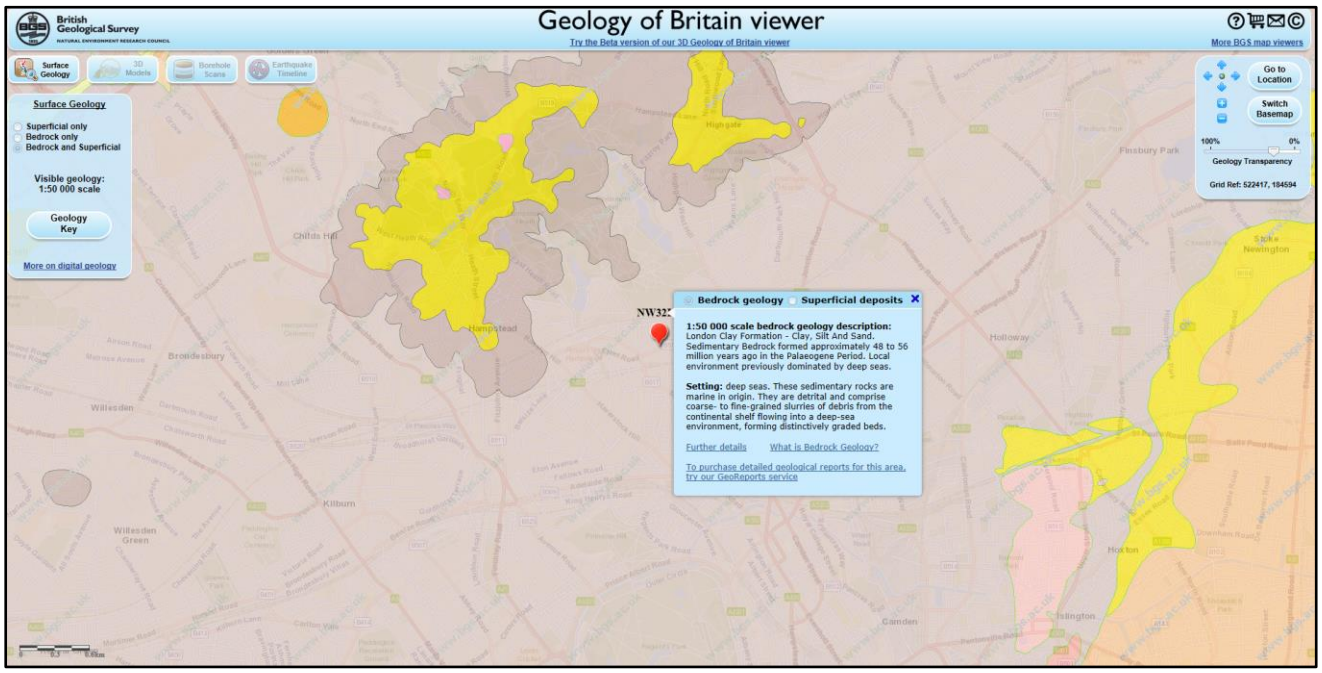


Figure 1: Showing the screen-shot of BGS web site data, with 2 Courthope Road site identified by the red dot.

4.0 PROPOSED DEVELOPMENT & DEVELOPMENT SITE DETAILS

4.1 Proposed Development

The demolition of the existing transformer chamber and the construction of a brick-built, single-storey extension with a basement to the detached residential dwelling.

The proposed building footprint of overlaps that of the transformer chamber.

Similar excavation works are proposed to the front of the property although this will not affect any retained trees.

4.2 Existing Grounds

Laid to soil following removal of impervious concrete hard-standing.

4.3 Slopes & Boundaries

The site is predominantly level.

.

4.0 PROPOSED DEVELOPMENT & DEVELOPMENT SITE DETAILS (continued…)

4.4 Tree Survey Schedule

The schedule following contains the tree details and survey data, in accordance with Section 4.4 of British Standard 5837: 2012, as well as the tree categorisation for quality and amenity assessment.

The recommended tree works within the table are *preliminary* recommendations, in the interests of good tree management and arboricultural best practice, exclusive of the site development. The schedule of tree works found at Section 7.1 of this report details tree works (none) resulting from the implementation of the approved development.

It must be noted that the Lime tree (T1) is situated outside of the application site boundary and is, therefore, the responsibility and in the control of a third party, the London Borough of Camden Council. For this tree to be pruned by a third party, permission must first be granted by the Council in accordance with British Standard 3998: 2010 *Tree Work - Recommendations*.

TREE SURVEY: British Standard 5837:2012

Client:	Aanya Property Developments Ltd.	***Report No:***	JL/170266R/sh
Completed by:	Mr. J. Lawson		
Trees Tagged:	No	***Weather:***	Dry and clear
Site:	2B Courthope Road, Hampstead, London, NW3 2LB	***Date of Survey:***	29th January 2018

Tree Ref	Species	Height (m)	DBH (mm)	Crown Spread (m)		Height of lowest live branch (m)	Crown Clearance (m)	Age	Physiological Condition (vigour)	Structural Condition	Estimated Remaining Contribution (Years)	Grading Category	RPA (m^2)
T1	Common Lime	7.5	370	N E S W	3.0 3.0 3.0 3.0	4.6	4.6	SM	Normal	•Local Authority 'Street Tree'. •Fair structural condition. •Stem leans 10° to east; Not a significant concern at present. •Regularly pollarded to heads. •Evidence of displacement of paving slabs in the vicinity of the tree reported previously.	40+	B1	62 (Radius = 4.4m)

Tree Survey Schedule Key:

Tree Ref – tree reference on Constraints Plan and /or tree tags, where used. **Species** – tree species giving English common name. **Height –** tree height recorded in metres. **DBH –** the individual or cumulative (if multi-stem) trunk diameter, when measured at 1.5m above ground. **Branch Spread** - crown spread in each of the four cardinal compass points. **Crown Clearance –** the height of a) the lowest branch and b) the lowest part of the crown above ground and its orientation. **Age -** recorded as **young (Y) up to 1/5 of tree's life-cycle, semi-mature (SM) up to 2/5 of tree's life-cycle, early mature (EM) up to 3/5 of tree's life-cycle, mature (M) up to 4/5 of tree's life-cycle and over mature (OM) up to 5/5 or above of tree's life. Condition –** is reference to physiological and structural observations. **Estimated Remaining Contribution** – estimated period of time, in years, which the tree(s) should remain a valuable feature in the landscape, as well as in good health and condition. This estimation is independent of the Category of Retention. **Category –** a tree quality assessment using **U** to remove trees for Arboricultural reasons; **A** is high quality specimen; **B** is moderate quality; **C** is low quality. **RPA** – tree root protection area, also expressed as a radial distance in metres from the tree stem, is the minimum area around each tree deemed to contain sufficient roots and rooting environment to maintain tree vitality. All comments to British Standard 5837: 2012

NOTE – Where a # symbol is present, the preceding dimension has been estimated.

4.0 PROPOSED DEVELOPMENT & DEVELOPMENT SITE DETAILS (continued…)

4.5 Tree Management Recommendations

The recommended tree works within the table below are *preliminary* recommendations, in the interests of good tree management and arboricultural practice, and are *exclusive* of any proposed redevelopment of the site.

Tree Ref	Tree Species	Recommendations	Timeframe
T1	Common Lime	1–No works required at present (third party responsibility).	N/A

5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 Tree Constraints Plan

Two Tree Constraints' Plans (hereafter referred to as TCP Existing and TCP Proposed) referenced JL/170266 can be found as an appendix at the end of this report. The TCPs illustrate the tree(s) subject to the survey; their physical constraints which are discussed below; and the relationship of the proposed development in relation to these trees.

The main stem(s) depicted on the plans are a true reflection of their diameter, when measured during the survey. The crown spreads have been plotted accurately and are coloured to correspond with the grading category of each individual tree. The trees have been identified by their reference number, as per the tree survey schedule above.

The TCP was produced by Bartlett Consulting using architectural software and the plans listed in Section 1.3 above. All scaled measurements must be checked against the original submission documents for accuracy and it is recommended that all measurements are confirmed on site, when marking-out the development footprint.

5.2 Tree Constraints

Below Ground Level Constraints

The below ground level constraint on any development site will include the root system and rooting environment of trees being retained. The calculated Root Protection Area, (hereafter referred to as RPA) is indicated by the grey hatched areas on the TCP and shows the minimum radial area around each tree, given in the above table, which is deemed to contain sufficient roots and rooting environment to maintain the current vitality of the tree. This area is as per the requirements of British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction - Recommendations.*

In the first instance, the RPA should remain a construction exclusion zone and all proposed development should be planned and located outside the RPA for trees of such quality and value to be retained, leaving the RPA sacrosanct.

Where there is proposed development within the RPA of a tree of such quality and merit that it will be retained, Bartlett Consulting must be able to demonstrate that the tree(s) can remain viable; the RPA lost to encroachment can be compensated for elsewhere and mitigation measures can be implemented to improve the soils and rooting environment, before the proposals are finalised.

Where agreed by Bartlett Consulting during the design stage, access may take place within a RPA during construction. Each tree, its environment, and the level of trespass must be assessed individually and the area protected by a combination of vertical barriers and ground protection.

Above the Ground Constraints

The above ground level constraints on a development site can be numerous, resulting primarily from the current and ultimate crown height and spread of the retained tree, its species characteristics, such as evergreen or deciduous, the height of its crown above ground level and any "nuisance" that might be the result of a tree's proximity to living areas.Proposed structures should be designed and/or located with due consideration of this assessment and information, so as to prevent direct damage from occurring to the structure, as well as the need for unnecessary and possibly damaging tree management works.

5.0 ARBORICULTURAL IMPACT ASSESSMENT (continued…)

5.3 Discussions

The following discussions will take into consideration the design proposals. In accordance with Section 4.4.1.2 of British Standard 5837:2012, these discussions will identify any potential tree and development conflicts where any trees of merit constrain the site, and will, where necessary, recommended mitigation options and appropriate methods/ technical solutions.

The condition of the Lime tree (T1) close to the site is described above in the table following Section 4.4.

We have graded the surveyed tree as Category B. It is one of a number of similar, pollarded trees at the southern extent of Courthope Road. These street trees are all of the same species and age. Their growth, development and form, has been managed with the regular implementation of a cyclical pollarding regime to limit their size.

Direct Impacts:

The existing third party Lime tree is situated in the vicinity of the existing building and the decommissioned transformer chamber, which is to be demolished and removed prior to the construction activities on the site.

The Category B street tree (T1) will be retained (off-site) and therefore the appearance and arboreal character of the local landscape will still be maintained.

We consider that this tree, which is owned and managed by the Council, constrains the development of the front part of the site and that bespoke mitigation techniques and a level of arboricultural supervision will be required during the demolition and construction works.

T1 is located approximately 3.75 metres from the western wall of the proposed extension and the basement. The circular calculated RPA of the roadside Lime tree (T1) with a radius of 4.4 metres is shown in part on the TCPs. With regard to the Lime tree (T1), the previous site investigation and construction established that in fact there are no significant roots in that part of the theortecal zone occupied by the recent development of the site (single-storey dwelling with basement). The adjustment to the RPA of T1 is, therefore, shown as a polygonal shape (with a dashed line) on the existing TCP.

With reference to the TCP (Proposed) and the Tree Protection Plan, the proposed detached single-storey and basement (with retaining wall) will encroach marginally into the northern sector of the calculated RPA of the T1 occupying an area of approximately 3m² (5%) of the calculated RPA. The significance and mitigation of this slight theoretical encroachment, which is an amount regarded as permissible of new hard surface encroachment within the RPA of a retained tree, is discussed below.

We consider this encroachment to be minimal in terms of the overall RPA of T1 and inconsequential in terms of the well-being of the roadside Lime tree, which has been regularly pollarded. Given the past management of the tree, we consider that the size of the root system required to support it may well be significantly smaller than that for a maiden tree with a stem of similar diameter. We also consider that the semi-mature tree has a greater tolerance of pruning than a fully mature tree and expect that it would adapt to any root pruning, as it has to cyclical pollarding.

Furthermore, we consider that the existing foundations, floor slab and ducts of the transformer chamber will probably have prevented root growth in this part of the notional RPA of T1.

5.0 ARBORICULTURAL IMPACT ASSESSMENT (continued…)

5.3 Discussions (continued…)

For these reasons, it is the consideration of Bartlett Consulting that no significant secondary roots will be encountered in this very small part of the site; therefore, there will be no significant demonstrable damage to the tree roots or rooting environment and the proposed development will not be detrimental to the health or stability of the Lime tree (T1). Nevertheless, care must be taken to prevent any damage to, or loss of, any significant roots of the T1.

In this regard, the recommended protective box/ barrier and ground protection will, together with the existing hard-standing (pavement), prevent further ingress within and, as compensation for the theoretical encroachment, near to the notional RPA and limit the working zone available to contractors.

Prior to the commencement of works on the site, physical tree protection measures must be applied to all of the retained street tree (T1). As in relation to previous development of the site, the most effective protective barrier would be the construction of a wooden enclosure around the base and main stem of T1. This wooden, protective box will have to be securely fixed witout the use of attachement to the tree. It should be constructed with the same dimensions of the area of soft landscaping surrounding the base of the tree (approximately 1200 x 2300 millimetres), with a frame clad in suitable plywood and span the height of 4.5 metres above ground level.

As before, we consider that due to the location of T1 in relation to the development site, public highway (pavement and road), the erection of a protective barrier in line with the calculated RPA will not be feasible. The extent of the protected area will have to be smaller in order to permit access to vehicuar and pedestrian traffic.

Whilst this protective barrier/ box would not conform to the recommendations detailed within BS 5837: 2012, this bespoke protection will be fit for purpose. Allied to an area of ground protection within and adjacent to a small part of the RPA of T1, there is sufficient hard-standing in the form of the pavement in the vicinity of the tree to limit the possibility for ground/ soil compaction. Similar protection could, if required, be afforded to the street tree located on the opposite side of Courthope Road.

The line of the nearest foundations of the tranformer chamber will require careful extraction, in order to retain and protect any roots from T1 found to abut them. Any such roots shall be packed around with course sharp sand upon backfilling.

Indirect Impacts:

As with the previous development of the site, the tree will cause some shading of the proposed extension by virtue of its location and size. However, the design has incorporated a second open courtyard to provide sufficient natural light to enter the extended dwelling. The crown of the Lime tree (T1) will not encroach upon the proposed extension to the dwelling.

Other potential indirect impacts result from the practical requirement of access during the demolition phase and for construction vehicles and personnel, etc., and for a 'working zone' for the proposed building.

These matters will be addressed by the use of protective measures (barriers and ground protection). Furthermore, should it be necessary to install any new drains or utility services in accordance with NJUG10 guidelines avoiding the root protection areas of all retained trees.

5.0 ARBORICULTURAL IMPACT ASSESSMENT (continued…)

5.4 Conclusions

One roadside Lime tree adjacent to the property of 2B Courthope Road has been subject to a survey and amenity assessment using the criteria set-out in British Standard 5837: 2012. This tree is graded as a Category B.

The proposal will retain the Lime tree (T1).

Site specific Arboricultural Method Statements, together with a programme of site supervision and/ or monitoring during any approved development, will be detailed and included below.

The demolition and construction methodologies have not been detailed at this stage. Demolition and construction activity could adversely affect the retained tree if appropriate protective measures are not taken. However, as long as adequate precautions to protect the retained tree are specified and integrated into the relevant documents as described in the Method Statements attached to this report as well as actioned, the development proposal will have no significant adverse impact on the retained tree and its contribution to the amenity, character and landscape of the Conservation Area.

Provided that the guidance is fully adhered to, it is the consideration of Bartlett Consulting that the proposed development will have no significant effect on the future health and life expectancy of the retained street tree, and that the proposed development is, therefore, supported from an arboricultural perspective.

6.0 TABLES OF DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK

6.1 Table 01: Implications on Existing Tree Stock

Tree Ref	Species	Cat.	Removal Due To		Mitigation Required		Aspect of Development Affecting Retained Tree
			Proposed Development	Tree Condition	Canopy	RPA	
T1	Common Lime	B1	N/A	N/A	N/A	✓	5% of the calculated Root Protection Area (RPA) falls within proposed building line; Approximately 3m². (See Discussion)

6.2 Table 02: Mitigation for Identified Tree & Development Conflicts

Tree Ref	Species	Cat.	Mitigation Required
T1	Common Lime	B1	• Excavation within rooting zone under arboricultural supervision. • Erection of vertical barrier and ground protection, as shown on TPP.

7.0 ARBORICULTURAL METHOD STATEMENT

7.1 Sequence of Events

From an arboricultural perspective, site operations should follow the below table and sequence of events. It is strongly recommended that prior to each event all matters pertaining to the trees should be checked and liaison made with the appointed Project Arboriculturist, including a site inspection where necessary.

Sequence	Brief outline of event
1	Erection of vertical barrier to create construction exclusion zone prior to demolition phase and installation of ground protection, as indicated on Tree Protection Plan.
2	Site preparation and set-up of storage areas & facilities.
3	Demolition of existing transformer chamber and extraction of associated foundations (by hand tools only). Note: Any significant roots (>25mm diameter) should be retained and protected by damp sacking until coverage with infill.
4	Excavation in relation to basement within the calculated RPA implemented with an 'Air Spade' or by hand tools only. Note: Any roots encountered within the site to be appropriately pruned with sharp tools with the advice/ supervision of an Arboricultural Consultant.
5	General construction and development operations.
6	Clearance of all surplus equipment and building supplies.
7	Removal of tree protection.

7.2 Tree Protection Measures

The location of the temporary tree protection barriers, and the areas they protect, are shown on the Tree Protection Plan (hereafter referred to as TPP) referenced JL/170266 and found at the end of this document. The precise location of the barrier is shown on this plan.

Vertical Barriers: Physical protection measures for the retained trees, which will ensure that the designated RPA becomes an exclusion zone during all stages of development. Vertical barriers will prevent machinery, men, materials, and other site activities from occurring within the RPA or damaging the tree crown.

Vertical barriers should be fit for the purpose of excluding construction activities, and appropriate to the degree and proximity of the site operations. Specifications and illustrations can be found in Method Statement 1 below.

Once erected, the fencing will be treated as sacrosanct, and must not be moved or adjusted during any stage of site operations without the prior written consent of London Borough of Camden Council and Bartlett Consulting.

7.0 ARBORICULTURAL METHOD STATEMENT (Continued…)

7.2 Tree Protection Measures (Continued…)

Ground Protection: Non-compacting ground protection may be required where the vertical barriers have been off-set to allow for the 'working zone', scaffolding and site traffic during demolition and construction. Any such ground protection should be appropriate to the degree and location of site operations, and must be retained on site until there is no risk of any damage from demolition and construction works. Specifications and illustrations can be found in Method Statement 2 below.

No mixing of cement or other chemicals must take place on top of the ground protection, nor should any storage of oils, fuels, chemicals or cement take place atop the ground protection.

Once installed the areas of ground protection (tree protection) will be sacrosanct, and must not be removed or adjusted during any stage of site operations without the prior written consent of London Borough of Camden Council and Bartlett Consulting.

7.3 Site Supervision

Good tree protection cannot be reliably implemented without regular arboricultural input. The nature and extent of that provision will vary according to the complexity of the site and the resources available. An Arboricultural Consultant should always be instructed to work within the guidance of this report and Local Planning Authority conditions to oversee implementation of protective measures and tree management proposals as detailed within this report.

Discharge of Planning Conditions

It is highly likely that London Borough of Camden Council, if minded to 'consent' the planning application, will subject this report and specific sections of it as conditions of planning approval. If subject to a tree-related condition, this report and its contents will form legal requirements during all phases of development.

Breaches of planning conditions can result in enforcement action being taken by the Council in the form of "stop notices" as well as monetary fines. It is strongly recommended therefore that this report and accompanying plans are kept on site at all times; and all contractors are familiarised with the requirements.

Arboricultural planning conditions cannot be effectively discharged without site supervision by an Arboricultural Consultant. Any supervisory action must be confirmed by formal letters or log entries circulated to all relevant parties, including the council. These records of site visits will provide proof of compliance and allow planning conditions to be discharged as the development progresses. The proposer or his agent should instruct an Arboricultural Consultant to enable compliance with the Local Planning Authority requirements set out in the planning conditions, before any work begins on site.

7.3 Site Supervision (Continued…)

Phasing of Supervision

Phasing of arboricultural involvement in the development project, including proper budgeting, can only be factored into the developing work programmes if the overall project management takes full account of tree issues if the application is consented.

An Arboricultural Consultant must be involved in the following phases of the project management:

1– Following the erection of vertical barriers (prior to demolition, etc.)

2 – Upon completion of all site operations, immediately before removal of vertical barriers, etc.

7.4 Arboricultural Method Statement Attachments

AMS 1 – Vertical Barriers
AMS 2 – Ground Protection
AMS 3 – Utility Service Provision

ARBORICULTURAL METHOD STATEMENT 1 – BESPOKE TREE PROTECTION BOX

Date: 7th February 2018

Site: 2B Courthope Road, Hampstead, London, NW3 2LB.

Given the intensity and scale of development, proximity to the public highway and position within the pedestrian footpath, it is considered impracticable to fully conform to the default specification as detailed within BS5837:2012: Trees in relation to design, demolition & construction. Please refer to Figure 1 below for reference.

The default specification of; securely fixed wired fencing measuring approximately 2.0m high, 3.5m wide will constrain not only the proposed development but also users of the public highway and pedestrian footpath.

As a result, a bespoke wooden tree protection 'box' must be constructed on site to effectively protect T1 – Common Lime tree prior to the commencement of all construction activity, including any demolition works associated with the proposed development.

The main stem of T1 – Common Lime must first be wrapped in hessian, to effectively provide several layers around the main stem. The hessian must be applied from 0.5 metres above ground level and effectively cover up to a height of 1.5 metres above ground level.

Once the main stem has been adequately wrapped in hessian, an approximate length of 2.5-3.0 metres of 'Chestnut pale fencing' must then be wrapped around the tree and appropriately fixed, either with the use of wire or zip ties. This shall provide an effective impact resistant surface for the tree's main stem. Please refer to Figure 2 below for an illustrative example.

A minimum of four vertical timber posts must then be secured into the ground by means of a metal post holder, similar to 'Met Post® – Repair Spur', which will effectively support a timber post whilst keeping below ground level disturbance to a minimum, e.g. 250-300 millimetres of penetration into the surrounding soils.

The four timber posts measuring approximately 75 x 75 millimetres must be inserted into the metal post holders, ensuring a height of 2.5 metres above ground level is achieved.

Once all four/ five timber posts have been secured into the metal post holders, they should be connected by rails and each flank must then be encased with the application of approximately 20 millimetre thick plywood, secured fixed with screws on the posts and rails. Please refer to Figure 3 below for a reference illustration.

Once the bespoke tree protection box has been constructed, each side of the box must feature the Tree Protective Fencing sign, please refer to Figure 4 below for further details.

The tree protective box must be retained for the entire duration of development works on site and must only be dismantled upon completion of the works. Care must be taken when dismantling the tree protection box and removal of the chestnut pale fencing and hessian, to ensure damage to the tree does not occur.

ARBORICULTURAL METHOD STATEMENT 1 – BESPOKE TREE PROTECTION BOX (Continued…)

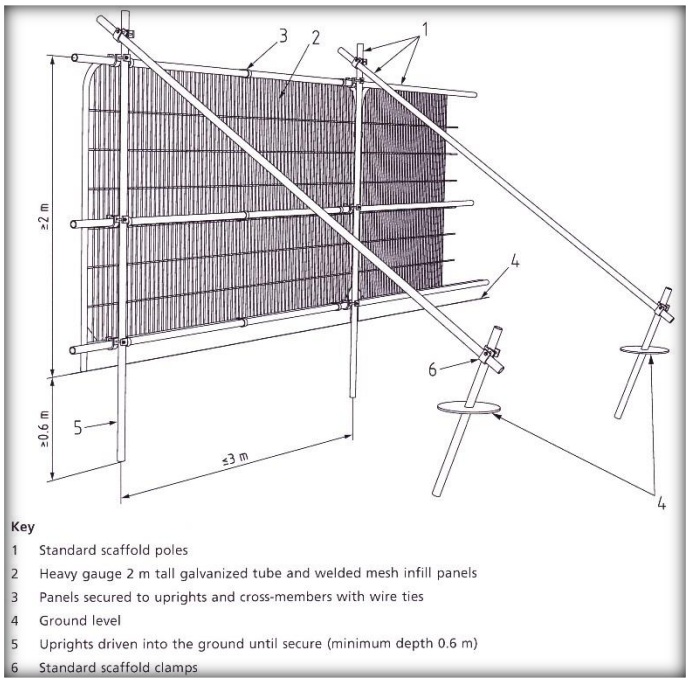


Figure 1: Showing the default specification vertical barrier (reproduced from BS5837:2012)

Figure 2: Showing the 'chestnut pale fencing' to be applied to street tree T1 – Common Lime

ARBORICULTURAL METHOD STATEMENT 1 – BESPOKE TREE PROTECTION BOX (Continued…)

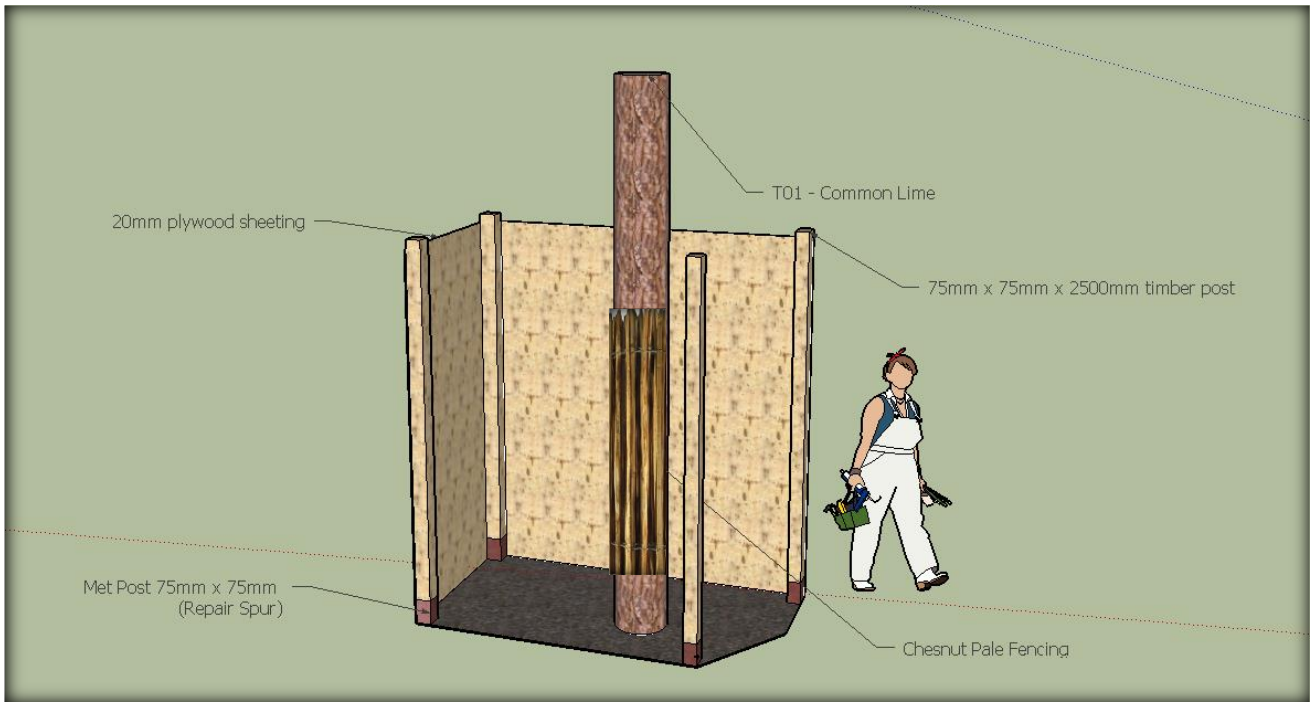


Figure 3: Showing the Tree Protective Box applied to tree T1 – Common Lime

ARBORICULTURAL METHOD STATEMENT 1 – BESPOKE TREE PROTECTION BOX (Continued…)

Figure 4: showing the tree protective fencing signage to be applied to the Tree Protective Box.

ARBORICULTURAL METHOD STATEMENT 2 – GROUND PROTECTION
(Hatched Blue on the appended Tree Protection Plan)

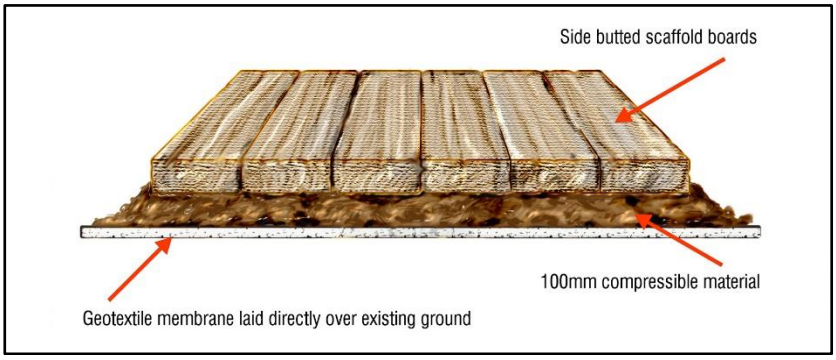
Date: 7th February 2018

Site: 2B Courthope Road, Hampstead, London, NW3 2LB.

Due to the need for a 'working zone' (access) within and near to the notional root protection area of the tree, prior to any the introduction of any building materials and/or supplies or demolition, ground protection in accordance with the below specifications should be established:

Pedestrian movement and pedestrian-operated machinery up to gross weight 2 tonnes

Lay geo-textile matting directly onto the existing ground/ surface; apply approximately 150mm of a compressible material, such as woodchip or sand over the matting; lay down abutting scaffold boards, large sheets of plywood, or interlinked metal tracks such as Ground Guard®. The latter shall be as per the appropriate capacity based on the manufacturers' specification for the load.



It is also possible for scaffolding to be erected on, or independent of, this ground protection:

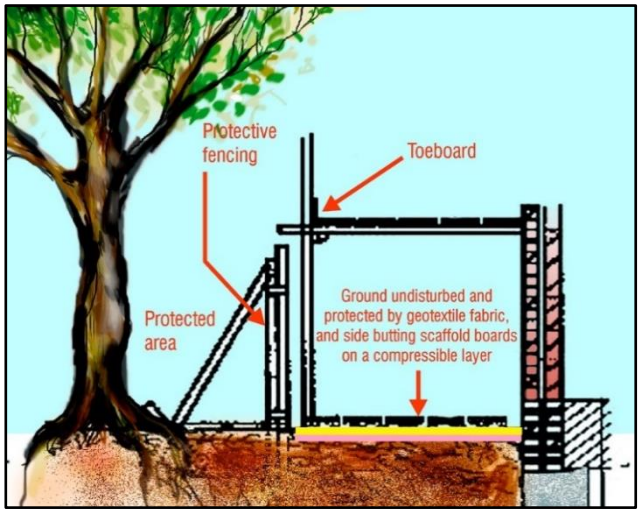


Figure 1: Illustration of Default Specification Vertical Barrier (reproduced from superseded BS5837:2005)

Note: The protected areas shall not be used either for the storage of materials or spoil, nor for the mixing of substances or the disposal of any residues. Nor shall the protected area be allowed to be contaminated by run off from activities beyond the protection zones. **NO** other machinery is to be driven across the ground protection at any time for any reason.

ARBORICULTURAL METHOD STATEMENT 2 – GROUND PROTECTION (Continued…)
(Hatched Blue on the appended Tree Protection Plan)

Wheeled or tracked works/ construction traffic exceeding 2 tonnes gross weight (Preliminary – To be designed if required)

An appropriate system (e.g. proprietary system or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

ARBORICULTURAL METHOD STATEMENT 3 – UTILITY SERVICE PROVISION

Date: 7th February 2018

Site: 2B Courthope Road, Hampstead, London, NW3 2LB.

It is important that all utility supply ducts, including water and sewerage pipe-works are directed away from the critical root protection areas/ zones of retained trees. For guidance, please refer to the National Joint Utilities Group (2007) Publication Volume 4: Issue 2 Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

The Project Arboriculturist must be consulted should any trenching or installations be required that encroach the RPA of the retained tree.

The tree works department of Bartlett Tree Experts is equipped to undertake air-blast removal of soil overlying tree root zones and also to provide soil injection of fertilisers should the need for these services arise following the construction works.

We trust that the contents and recommendations contained within this report were informative, easy to understand and helpful to you. Should you have any further questions or concerns, please do not hesitate to contact us again.

REPORT CLASSIFICATION:	**British Standard 5837: 2012 Development Site Report**
REPORT STATUS:	**FINAL**
REPORT COMPLETED BY:	**Mr. J. Lawson** BSc Hons (For), C.Biol, MRSB **Chartered Biologist** **Arboricultural Consultant**
SIGNATURE:	John Lawson **DATE: 07.02.2018**

APPENDICES 1 & 2

TREE CONSTRAINTS' PLAN & TREE PROTECTION PLAN

Tree Constraints' Plan: Showing Existing Site Layout (Bartlett Consulting Reference JL/170266)

Tree Constraints' Plan: Showing Proposed Site Layout (Bartlett Consulting Reference JL/170266)

Tree Protection Plan: Showing Proposed Site Layout (Bartlett Consulting Reference JL/170266)