Sharon Hosegood
ASSOCIATES

ARBORICULTURAL IMPACT ASSESSMENT REPORT

BS 5837:2012 'Trees in relation to design, demolition and construction. Recommendations'

report

SITE

20 Thurlow Road, London NW3 5PP

CLIENT

Mark Fowler

Sharon Durdant-Hollamby
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DATE: October 2023
OUR REF: SHA 1716 AIA

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Executive summary

This report is submitted in connection with a planning application for a new deck at 20 Thurlow Road, London NW3 5PP. I have provided all information in accordance with the British Standard (BS 5837: 2012 ''*Trees in relation to design, demolition and construction. Recommendations*'' (referred to as BS).

A Tree Preservation Order protects a lime tree at the front (SHA T10) and a copper beech (SHA T7). The remainder of the trees are protected by virtue of the property being within Fitzjohn's Netherhall Conservation Area.

The property has a single lime tree on the frontage. In the rear garden is a prominent beech with smaller trees and shrubs on the eastern and western boundary. A large pollarded lime tree and a cherry tree is in the rear garden close to the property. The scheme retains all trees with the exception of T1 cherry. This tree is 1.4m from the edge of the house with a restricted rooting environment, and provides limited visual amenity beyond the garden due to the presence of other trees. Other than the removal of T1, there are no new arboricultural impacts from this proposal. Trees to be retained will be protected by tree protection measures and application of arboricultural method statements as detailed in this report. There will be a semi-mature cherry tree planted in the rear of the garden which will provide a higher visual amenity to the garden and the neighbouring gardens as it matures, and will have room to thrive.

Categorisation of tree features - trees/groups/hedges/woodlands	Total	Trees to be retained (on site)	Trees to be removed (on site) in relation to works
Category A (high value)	1	1	0
Category B (moderate value)	3	3	0
Category C (low value)	6	5	1
Category U (unsuitable for retention)	0	-	-
Total	**10**	**9**	**1**

Table 1 – tree numbers by category

Trees to be retained	Trees to be removed	Trees to be planted	Net impact
9	1	1	0

Table 2 – tree impact

Contents

Appendices

1. Introduction:

1.1. This report accompanies a planning application to London Borough of Camden for a new deck at 20 Thurlow Road, London NW3 5PP. The work is in accordance with BS 5837:2012 *'Trees in relation to design, demolition and construction. Recommendations'* (referred to as BS).

1.2. This report details tree condition, the impact of the proposal on, and from, the existing trees and the measures taken to protect trees to be retained. It also includes tree surgery recommendations.

1.3. The survey has resulted in a layout as shown in the tree protection plan at Appendix 3. Where technical terms are used, explanations are found in the glossary.

2. Statement of instructions and the issues addressed:

2.1. I was instructed by Kilburn Nightingale Architects on behalf of Mark Fowler to:-

2.1.1. Carry out a tree survey in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' (BS);

2.1.2. Analyse the proposals and the impact on trees to be retained;

2.1.3. Produce a tree protection plan, showing the location of the tree protection fencing in accordance with the BS and a specification for the protection of the existing trees;

2.1.4. Provide a tree surgery schedule which includes work to facilitate construction, based on the layout of, and works to, trees due to their condition or previous management;

2.1.5. Provide arboricultural method statements in as much detail as is practical at this stage.

2.2. The issues addressed are tree condition, and how the proposal impacts on the site and vice versa.

3. The site:

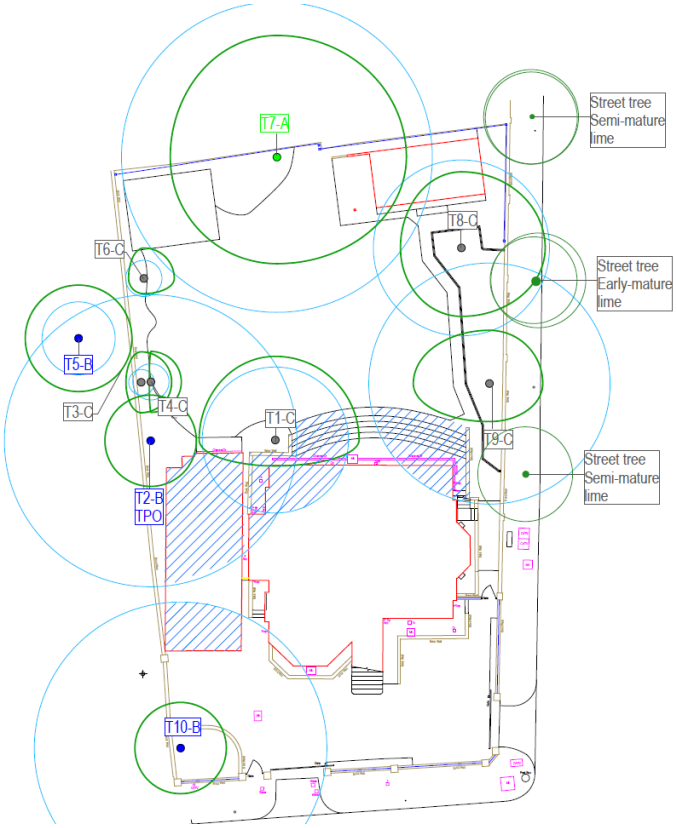
3.1. The site is situated in a residential area of Hampstead, on the corner of Thurlow Rd and Lyndhurst Terrace. Housing exists to the north and west along with associated gardens, and also across Lyndhurst Terrace to the east. Across Thurlow Rd to the south, lie similar residential houses with associated driveways and front gardens.

3.2. *Site soils:* An assessment of soils on-site was carried out by a desktop analysis using the National Soil Resources Institute website which identified the soils as likely to be freely draining slightly acid loamy soils. This is a guide only and detailed on-site soil analysis should be undertaken by the project engineer to inform the foundation design.

3.3. Most soils in urban areas are not true soils in the scientific sense. They do not have the same structure and profile as natural soils found in rural or natural settings. They are called 'made ground' and are a mixture of material that has accumulated in place as a result of human activity over many years. They may be lacking in structure, nutrients and organic matter, have high levels of acidity or alkalinity or be contaminated from salt spreading or previous industrial or other human activity. They may also be bacteria dominant rather than fungal dominant which can present a problem for newly planted trees. https://cdn.forestresearch.gov.uk/2022/02/7111_fc_urban_tree_manual_v15.pdf

4 The trees:

4.1. *Generally:* There are 10 individual trees which form the subject of this survey. Full details are found in the survey sheets at appendix 1 and their location on the tree survey plan *SHA 1716 TSP* at appendix 2 (extract below).



Plan 1 – extract from SHA 1716 TSP. Do not scale, north is vertical.

4.2. *Legislation*: A Tree Preservation order (TPO) protects the beech and a lime. The site is within Fitzjohn's Netherhall Conservation Area. Further information on legislation is found at appendix 7.

4.3. Comments on individuals:

4.3.1 T1 cherry is an early mature tree at c.16m high growing 1.5m from the property to the south. The roots are further constrained by the retaining wall to the east. The crown is unbalanced due to its location and is vigorous on the northern aspect, whilst also casting shading to rooms on 3 levels. There are a number of typical defects as detailed in the tree surgery schedule. It can be glimpsed in the mid-distance behind other trees from Lyndhurst Terrace. The lime tree (SHA T2) and other trees filter views to the west and north.

Photo 1 looking west at T1 cherry showing the curved steps and retaining wall.

Photo 2 of the mid trunk of T1 cherry looking east with large canker arrowed

Photo 3 of the upper trunk showing proximity to building

Photo 4 looking south at T1 and T2

4.3.2 Trees on the western boundary: T2 is a large mature pollarded lime which has been pollarded this year (planning reference 2022/5083/T). It is very close to the property and neighbouring property and in a raised planter. The other trees are small/medium and provide collective landscape value.

Photo 5 looking west

4.3.3 Trees on the northern and eastern boundary: The copper beech T7 is a very high quality mature tree and is the dominant tree in the immediate locality. A large multi-stemmed laurel and medium multi-stemmed bay are on the eastern boundary and provide screening between Lyndhurst Terrace and the garden. There are three semi/early mature lime street trees in the pavement.

Photo 6 looking north at T7

Photo 7 looking east

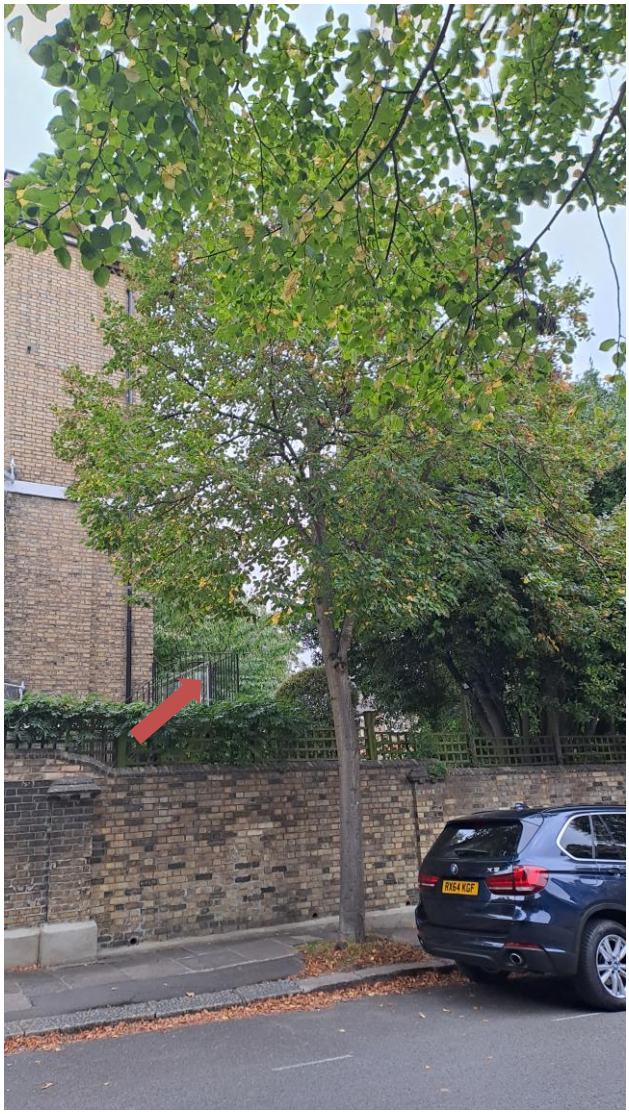


Photo 8 of the offsite lime tree looking east. Cherry is in the background (arrowed).

4.4. *BS retention category of trees in this survey, including offsite trees:*

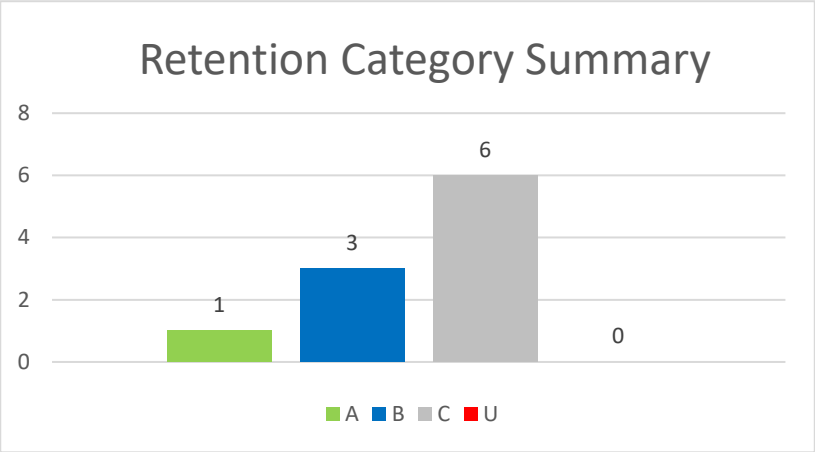


Table 3 – Retention category
A – high quality
B – moderate quality
C – low quality
U – unsuitable for retention

5. The Proposal

5.1. For a new deck.

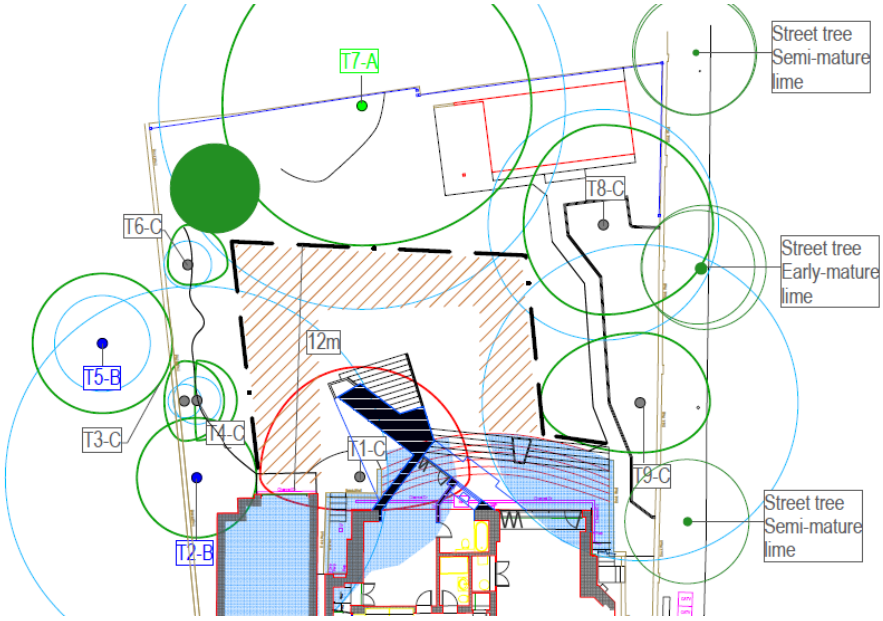
6. Arboricultural impact assessment:

6.1. *Summary of the impact on trees*: Development can adversely impact on trees by causing them to be removed to facilitate the development, or in the future, by adversely affecting their potential for retention through disturbance in root protection areas (RPAs) or through post development pressure to prune or remove.

6.2. Tree roots can be asphyxiated and die if the rooting zone becomes compacted and soil structure damaged which can easily occur, particularly on clay soils, even with the passage of light vehicles. At the design stage, disturbance within the RPA should be avoided. If unavoidable (which may need demonstrating), consideration must be given to any construction activity such as demolition, including removal of existing hard surfaces, changing soil levels and the provision of services where within RPAs, as well as new surfaces and structures.

6.3. *Comments on specific trees and the arboricultural impact:*

T1 will be removed and replaced as part of the works due to the requirement to excavate down for the raised deck very close to the trunk. The tree will be replaced with a semi-mature cherry (20 – 25cm girth at 1m) in the location shown on the tree protection plan (extract below).



Plan 2 – extract from SHA 1716 TPP. Do not scale, north is vertical.

All other trees will be retained and protected during works by a combination of tree protection fencing and ground protection in accordance with the specification at appendix 5 at the locations shown on the tree protection plan SHA 1716 TPP at appendix 3. The deck is in the same footprint as the steps, so there will be no new impact on the bay tree, T9. There will be no other arboricultural impacts.

7. Conclusions:

7.1. The scheme retains all trees with the exception of T1 cherry. This tree is 1.4m from the edge of the house with a restricted rooting environment, and provides limited visual amenity beyond the garden due to the presence of other trees. Other than the removal of T1, there are no new arboricultural impacts from this proposal.

7.2. Trees to be retained will be protected by tree protection measures and application of arboricultural method statements as detailed in this report.

7.3. There will be a semi-mature cherry tree planted in the rear of the garden which will provide a higher visual amenity to the garden and the neighbouring gardens as it matures, and will have room to thrive.

7.4. The scheme adheres to the following policies (see appendix 7 for further details)

Policy	Compliance demonstrated (in relation to arboriculture)
NPPF 2021 180 (c)	The scheme does not result in the loss or deterioration of ancient woodlands or ancient and veteran trees.
London G7	The scheme does not result in the loss or deterioration of ancient woodlands or ancient and veteran trees.
Camden Local Plan 2017	Policy A3 Biodiversity Information provided complies with requirements and the tree to be removed is low quality and will be replaced.

Table 4 – policy impact

Trees to be retained	Trees to be removed	Trees to be planted	Net impact
9	1	1	**0**

Table 5 – tree number

8. Recommendations:

8.1. That a copy of this report, and subsequent more detailed arboricultural method statement, is kept on site, including A3 colour copies of the tree protection plan. The arboricultural documents will be part of site induction by the main contractor to all sub-contractors.

8.2. That the arboricultural method statements are developed further and are observed by all site personnel and supervised at key stages by the project arboricultural consultant. Short supervision reports are to be written after each inspection as a record of compliance and audit trail to the Local Authority.

8.3. That the foundation design takes into account trees to be retained, trees to be removed and trees to be planted.

8.4. That there are no ground level changes with the area shown on the plan by tree protection fencing.

8.5. That there is a replacement cherry tree planted at semi-mature size in the first available planting season after felling T1. The tree must be planted and maintained in accordance with BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations.* The landscaping scheme should include enriched biochar around new planted and existing trees.

8.6. That no tree works take place until consent is granted other than the removal of dead and broken precarious branches

8.7. That the tree protection fencing is installed before machinery enters the site and remains in place until the soft landscaping stage.

Sharon Durdant-Hollamby
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Director
Sharon Hosegood Associates Ltd

Appendix 1

Tree survey sheets

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m	RPA (m^2)	Comments	Recommendations
T1	Prunus avium (Wild Cherry)	EM	400	1	16(3)	18	5.5	5.5	1.7	5	Fair	10+	C2	4.8	72.39	Tree located within raised bed. Rooting area restrained by level change or structure. Ivy on tree. Cavity on stem. Major deadwood in crown. Unbalanced crown shape. Branches encroaching upon building.Growing in a very constrained rooting environment on South and Eastern side. Large oval canker on South Western side of the trunk between 2 to 3m. Provides very limited visual amenity beyond the garden.	
T2 **TPO**	Tilia platyphyllos (Large-leaved Lime)	M	800	1	18(2)	25	3	3	3	3	Good	40+	B2	9.6	289.57	Reasonable form and condition. Rooting area restrained by level change or structure. Pollard. Unable to inspect stem due to undergrowth. Epicormics on stem.Recently pollarded and responded vigorously. Dense raised mound of pruned epicormic shoots. Shrubs, epicormics and leaf debris make basal stem inspection impossible. Immediately adjacent to boundary wall. 2m from corner of house.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m	RPA (m^2)	Comments	Recommendations
T3	Prunus (Prunus species)	SM	70	1	5(2)	18	2	2	2	1	Fair	40+	C2	0.84	2.22	Reasonable form and condition. Rooting area restrained by level change or structure. Growing very close to neighbouring tree resulting in unbalanced crown. Unbalanced crown shape. Crown distorted due to group pressure.Young sapling growing close to boundary wall. Will eventually outgrow its situation.	
T4	Malus (Apple)	Y	70	2	3(1)	8	2	2	2	0	Fair	20+	C2	1.19	4.45	Reasonable form and condition. Growing very close to neighbouring tree resulting in unbalanced crown. Unable to inspect stem due to undergrowth. Stem divides at ground level. Unbalanced crown shape. Crown distorted due to group pressure.	
T5	Betula utilis Jacquemontii (Himalayan birch)	SM	200	1	7(2.5)	18	3.5	3.5	3.5	3.5	Good	40+	B1	2.4	18.1	Offsite tree. Stem data estimated as offsite. Rooting area restrained by level change or structure. Good form and condition.Attracted offsite tree with dense canopy.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m	RPA (m^2)	Comments	Recommendations
T6	Prunus (Prunus species)	SM	70	2	4(2)	18	2	2	1	1	Fair	40+	C2	1.19	4.45	Reasonable form and condition. Rooting area restrained by level change or structure. Growing very close to neighbouring tree resulting in unbalanced crown. Stem divides at ground level. Unbalanced crown shape. Crown distorted due to group pressure.	
T7	Fagus sylvatica 'Purpurea' (Copper Beech)	M	850	1	20(2)	25	8	8.5	7	7	Good	40+	A2	10.2	326.89	Prominent tree. Excellent form and condition. Historically crown lifted and occluded well. Upper surfaces of roots prominent with callousing. Small amount of twig sized dead wood interspersed in the crown.Growing close to boundary fence. Prominent buttress roots amongst fernery. Spot lights on trunk.	
T8	Prunus laurocerasus (Cherry Laurel)	M	240 250 250 200 100	5	8(2)	9	5	5.5	4.5	4	Fair	10+	C2	5.78	104.97	Forms a dense screen. Good form and condition. Suckers around stem base. Multiple stems at ground level. Branches encroaching upon building.Large and attractive for a laurel.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m	RPA (m^2)	Comments	Recommendations
T9	Laurus nobilis (Bay)	EM	250 150 100 200	13	9(2)	18	3.5	3.5	2.5	5	Good	20+	C2	7.92	197.09	Reasonable form and condition. Rooting area restrained by level change or structure. Forms a dense screen. Suckers around stem base. Multiple stems at ground level.On an ivy covered mound. Spot light on tree. Slight crown bias West.	
T10	Tilia platyphyllos (Large-leaved Lime)	M	800	1	18(2)	25	3	3	3	3	Good	40+	B2	9.6	289.57	Reasonable form and condition. Rooting area restrained by level change or structure. Pollard. Unable to inspect stem due to undergrowth. Epicormics on stem.Recently pollarded and responded vigorously. Dense raised mound of pruned epicormic shoots. Shrubs, epicormics and leaf debris make basal stem inspection impossible. Immediately adjacent to boundary wall. In front garden in a highly prominent location.	

Explanation of the tree survey sheets

The tree survey has been carried out in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Below is an annotation of the abbreviations in the sheet and their meanings.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m^2)	Comments	Recommendations

1 Tree

T - Tree, **G** - Group of trees, **H** - Hedge and **S** -shrub mass

2 Species - Botanical name and (Common name)

3 Age

NP – Newly planted, **Y** – Young - an establishing tree that could be easily transplanted

SM - Semi-mature - an established tree still to reach its ultimate height and spread with considerable growth potential.

EM – Early mature – a tree reaching its ultimate height and whose growth is slowing, however it will still increase considerably in stem diameter and crown spread.

M – Mature – a tree with limited potential for further significant increase in size, although likely to have a considerable safe useful life expectancy

OM – Over-mature – of an age where the mature size of the tree can no longer be maintained, and adaptive growth strategies such as 'retrenchment' (growing down) are commencing. These strategies should not be confused with senescence or a moribund condition, as a good life expectancy can remain.

V – Veteran/Ancient – either a tree older than typical for the species, or a tree showing signs of age, and of great ecological, cultural or aesthetic value.

4 Dia (mm)

Diameter of the stem in millimetres at 1.5m above ground level for single stemmed tree or in accordance with Annex C of BS 5837 for multi-stemmed trees or trees with low forks or irregular stems.

5 Stems

Number or stems. Multi-stemmed is m/s

6 Height (Crown height)

Height in metres from the ground to the top of the crown

(Crown height) – height of canopy above ground level

7 Ult ht (m)

Height in metres that could be reasonably expected for the species given its condition, past management and location.

8 NSEW

The crown spread from the trunk to the tips of the crown at the four cardinal points

9 Cond

Physiological condition. Good, fair, poor or dead

10 Life Exp

Estimated remaining contribution in years; <10, 10+, 20+ and 40+.

11 BS Cat

Category in accordance with Table 1 and section 4.5 of BS

U – unsuitable for retention. Existing condition is such that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years. Note, category U trees can have existing or potential conservation value which might be desirable to preserve.

A – high quality and value (non-fiscal) with at least 40 years remaining life expectancy

B – moderate quality and value with at least 40 years remaining life expectancy

C – low quality and value with at least 10 years remaining life expectancy, or young trees with a stem diameter below 150mm

A, B and C category trees are additionally graded into: 1 – mainly arboricultural values, 2 – mainly landscape values and 3 – mainly cultural values including conservation

12 RPR (m)

RPR – Root protection area radius (m)

13 RPA – Root protection area (m^2)

14 Comments

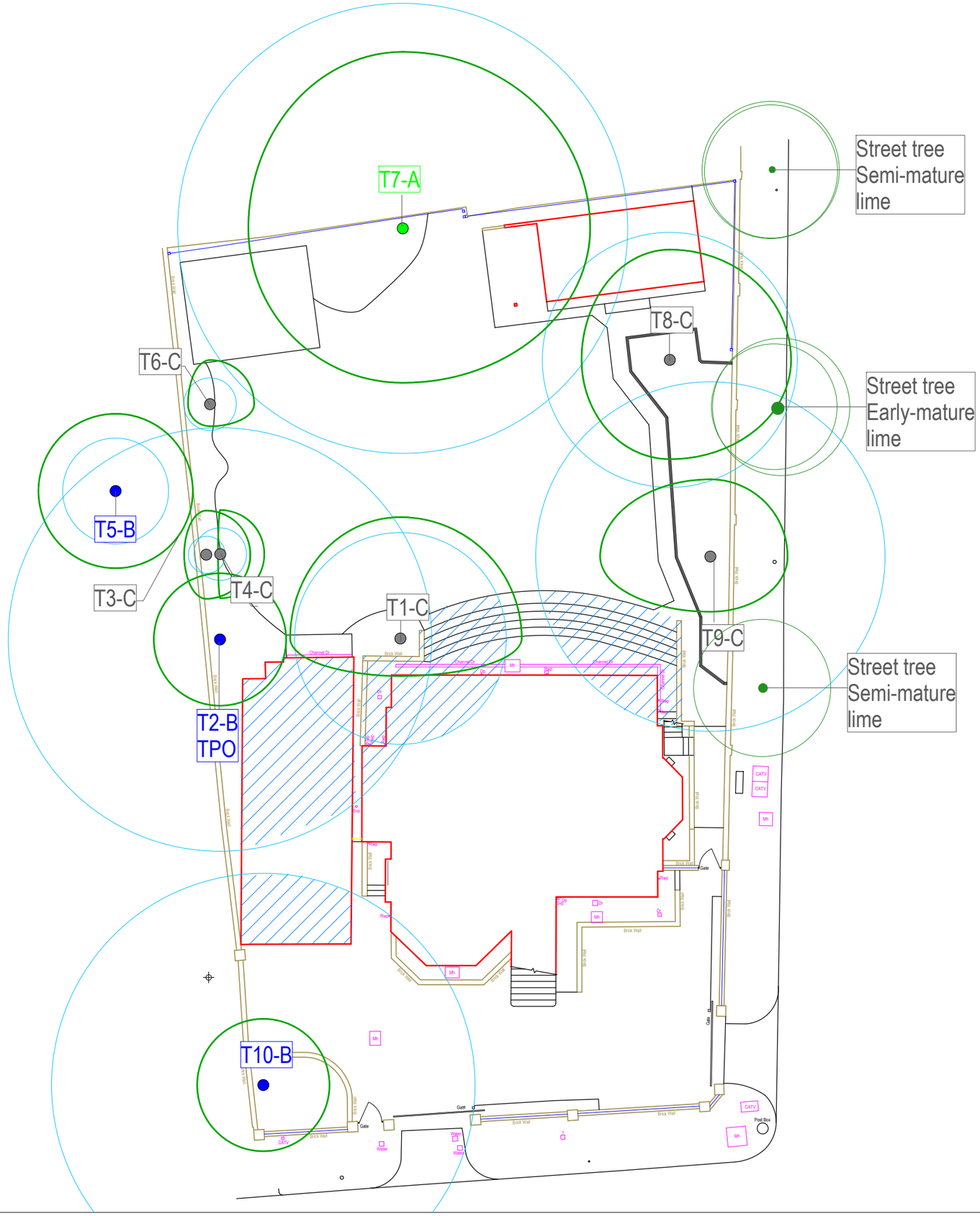
Detailed comments about the tree

15 Preliminary recommendations

Recommendations based on the tree's conditions and its current surroundings.

Appendix 2

Tree survey plan SHA 1716 TSP



T1-A Category A - high quality and value

T1-B Category B - moderate quality and value

T1-C Category C - low quality and value

T1-U Category U - unsuitable for retention

Crown spread

RPA - root protection area
as defined by Table 2
BS 5837:2012

Shaded area denotes building/level change creating a root barrier effect

Notes

1. Contractors to check all dimensions on site
2. Discrepancies must be reported to the Arboricultural Consultant before proceeding
3. The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
4. It is the responsibility of the contractor to ensure necessary consents for tree works are in place
5. This drawing is copyright
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Rev :	Description :	Authorized :

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Client
Mr M Fowler

Site Address
20 Thurlow Road, London NW3 5PP

Drawing Title	Orientation	Drawn	Authorized
Tree Survey Plan		ND-H	SMD-H

Date	Drawing Number	Scale	Drawing Status
9.10.23	SHA 1716 TSP	1200:@A3	For Issue

Revision
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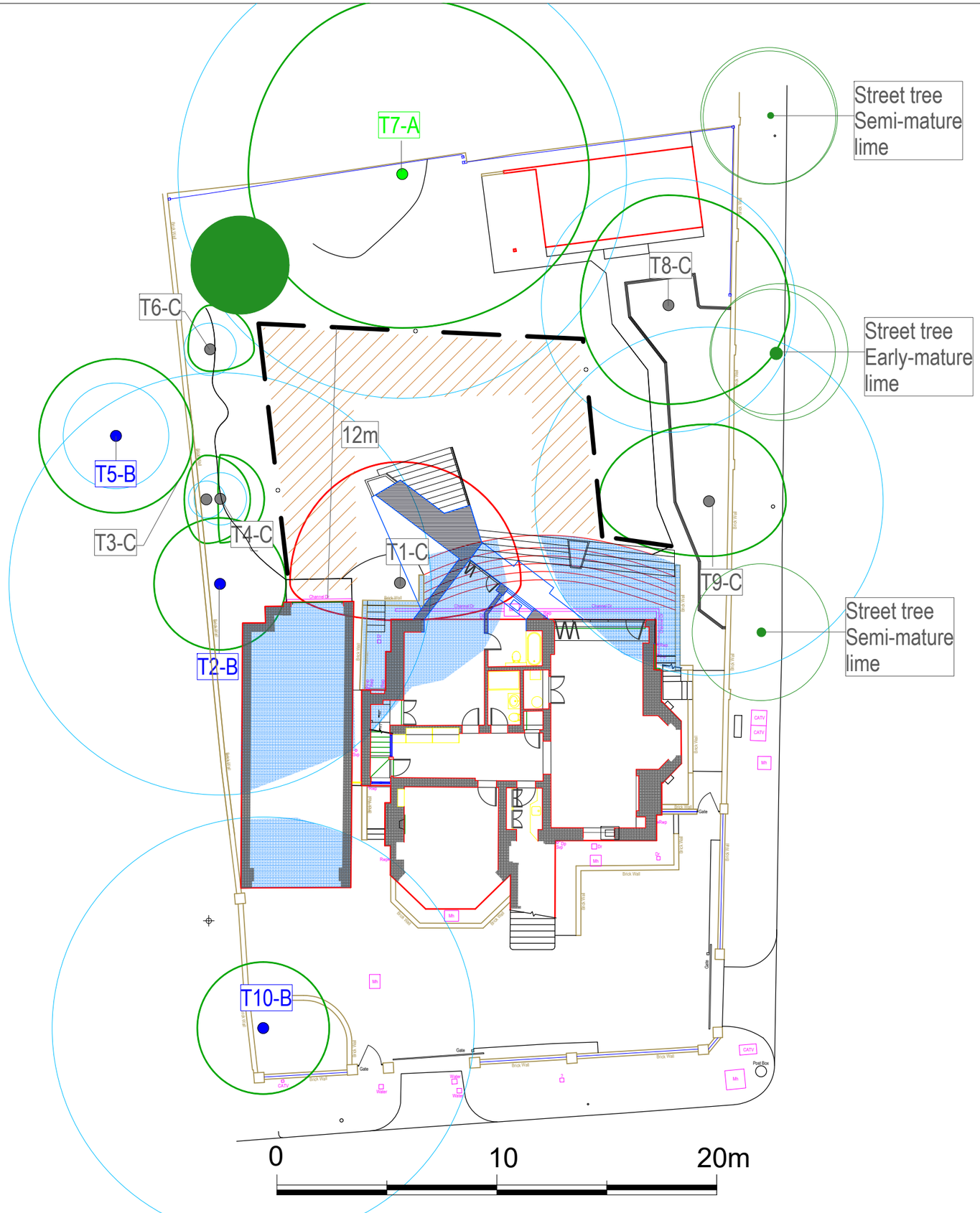
Appendix 3

Tree protection plan SHA 1716 TPP



T1-A Category A - high quality and value

T1-B Category B - moderate quality and value

T1-C Category C - low quality and value

T1-U Category U - unsuitable for retention

Crown spread

RPA - root protection area as defined by Table 2 BS 5837:2012

Shaded area denotes building/level change creating a root barrier effect

Ground protection comprising marine ply for pedestrian use during works

Tree protection fencing comprising braced Heras panels

Approximate location of replacement semi-mature cherry tree

Notes

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Mr M Fowler

Site Address

20 Thurlow Road, London NW3 5PP

Drawing Title	Orientation	Drawn	Authorized
Tree Protection Plan		ND-H	SMD-H

Date	Drawing Number	Scale	Drawing Status
31.10.23	SHA 1716 TPP	1200:@A3	For Issue

Revision

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Appendix 4

Tree surgery schedule

Tree surgery schedule

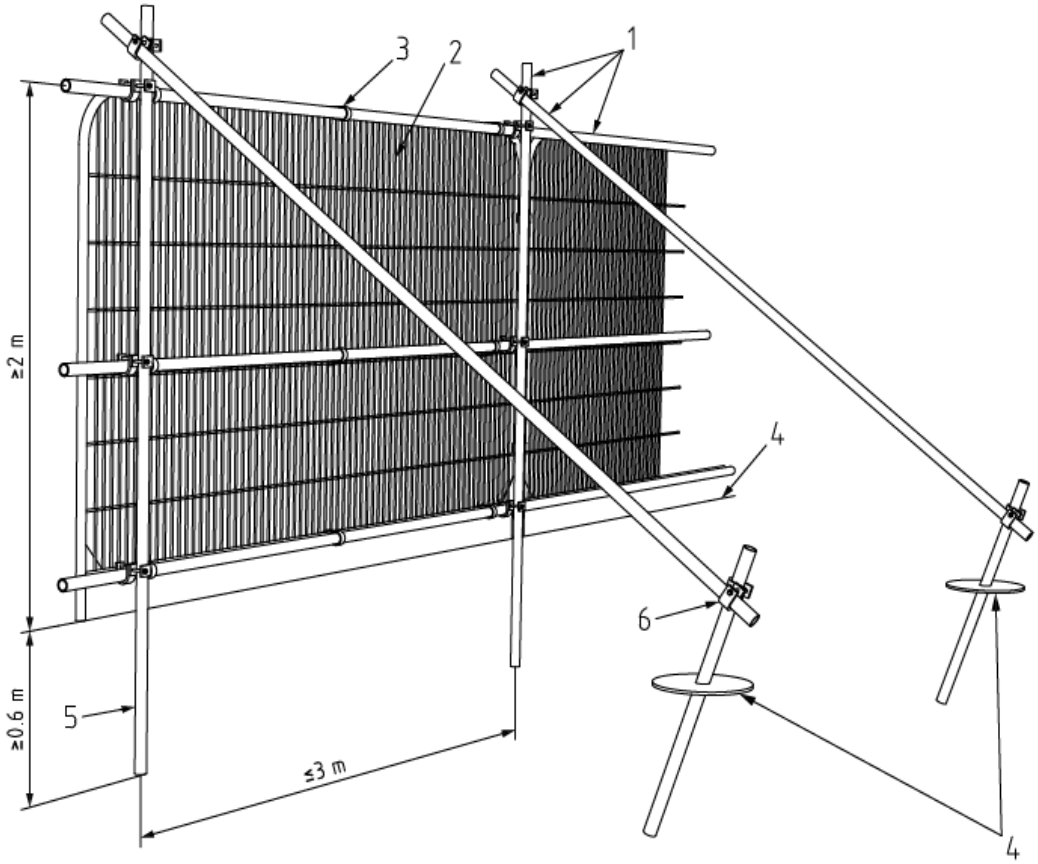
All works to be carried out in accordance with BS 3998:2010 'Tree works – Recommendations'. All pruning cuts to be made at suitable growing points in the line with the principles of 'Natural target pruning'. An ecological check is required by a competent person prior to tree works being carried out and the ecological report referred to. Works should not take place until planning permission is granted and all pre-commencement conditions are discharged. This must be communicated to the tree surgeon and storage agreed with the demolition/main contractor.

Tree no.	BS category	Species	Proposed works	Reason
T1	C2	Wild Cherry	Fell tree and remove root	To facilitate construction

Appendix 5

Tree protection specification

Figure 2 **Default specification for protective barrier**



Key

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

Tree protection fencing specification from BS 5837:2012 Figure 2

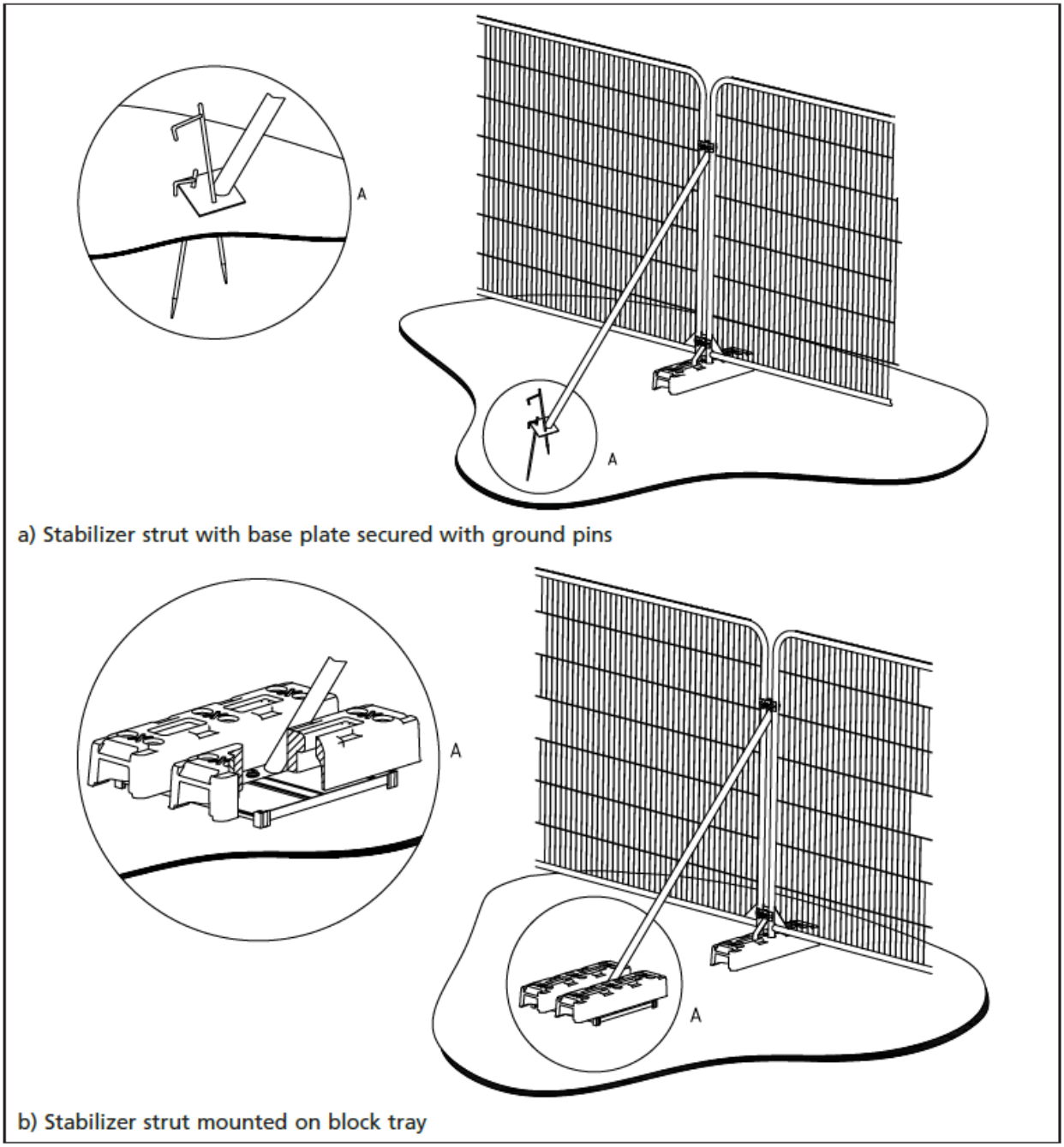
Section 6.2.2 of BS.

Barriers should be fit for purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees(s). Barriers should be maintained to ensure that they remain rigid and complete.

The default specification is shown above at Figure 2. Care should be taken when locating the vertical poles to avoid underground services and structural roots. Where it is not possible to drive a pole into the ground, for example on hard surfacing, figure 3 overleaf, applies.

The location for the tree protection fencing is shown on the tree protection plan delineated by a black dashed line. The location of the fencing is on the outer edge of the root protection area and the dimensions from fixed points are shown on the drawings. All weather signs should be affixed to the barriers, no more than 12m apart.

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Suggested site warning sign format

Ground protection during and construction

Where working space 'temporary access' is needed within the root protection area during works, fencing should be set back the minimum amount to achieve the required room. If there is existing hard surfacing in this area, it should remain during the works as ground protection. The suitability of this surfacing for ground protection, and whether it needs to be reinforced to bear the weight of machinery, should be assessed by an engineer and discussed with an arboriculturist.

Where the set back of the fencing exposes unmade ground, the ground must be protected before any works take place on site. This is to prevent root damage and soil compaction.

The ground protection might comprise of one of the following: (section 6.2.3.3 of BS)

A) For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane;
B) For pedestrian-operated plant up to a gross weight of 2 tonnes, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane;
C) For wheeled or tracked construction traffic exceeding 2 tonnes gross weight, an alternative system (e.g. proprietary systems 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.

The location for ground protection is shown on the tree protection plan by brown diagonal hatching, identified in the key.

SGN 3-02
Heavy-duty plywood set onto a compressible woodchip layer and pinned into position is suitable to spread the loading from pedestrian access.

SGN 3-05
A scaffold framework attached to the main scaffold fencing can be used to support either scaffold planks or plywood to create an elevated platform with a gap beneath.

SGN 3-06
Cellular products are a very effective means of providing ground protection where heavy vehicle use is expected. Here, it is being used to temporarily widen an existing road, to be removed once the construction is finished.

https://www.barrelltreecare.co.uk/assets/Uploads/SGN-3-Ground-Protection-V3.pdf

Appendix 6

Arboricultural method statement

1.0 **Tree works:**

1.1 Recommendations for tree works can be found in the tree surgery schedule in Appendix 4. All works shall be in accordance with BS 3998:2010 '*Tree work. Recommendations'*. The use of a competent and insured tree surgery contractor is necessary to comply with this. The main contractor and tree surgery contractor must ensure that any necessary consents have been received from the local authority and that no protected species are harmed whilst carrying out site clearance or tree surgery works. Within root protection areas, stumps, shrubs and other vegetation must be removed by hand or using stump grinding machinery to minimize root damage of retained trees. Where poisoning of stumps is specified, this must be carried out by competent operatives. Only chemicals approved for this purpose and used in accordance with the manufacturer's instructions will be used.

1.2 The following information must be sought:

- Current employers, public and product liability insurance
- Waste carriers' licence
- Qualification and experience of key personnel, including relevant NPTC certificates
- COSHH assessment
- Tool and task based risk assessment, including a Working at Height Risk Assessment
- Site specific risk assessment
- Emergency procedure plan
- Method Statement

1.3 A list of suitable tree surgeons is found at:

http://www.trees.org.uk/find-a-professional/Directory-of-Tree-Surgeons

Bio security measures are important and found at:

https://www.forestry.gov.uk/biosecurity

Potential use of timber:

Cherry wood is highly prized by wood turners and sculpture artists. Consideration should be given to its re-use, either for client use or by letting a re-use company aware such as https://www.fallenandfelled.co.uk/

For London based schemes, this accordance with the London Plan Guidance of Whole Life-Cycle Carbon Assessments (sections 3,8,12,13,16) and Circular Economy Statements (2.1.2).

2.0 **Fires:** Fires on site should be avoided if possible. If unavoidable, they should be situated far enough so that there is no risk of damage to the trees, taking into consideration the wind direction.

3.0 **Site and fuel storage, cement mixing and washing points:** All site storage areas, cement mixing and washing points for equipment and vehicles and fuel storage areas should be outside root protection areas unless otherwise agreed with the Local Planning Authority. No discharge of potential contaminants should occur within 10m of a retained tree stem or where there is a risk of run off into Root Protection Areas.

4.0 **Temporary buildings for site use:** Site cabins, trailers and other temporary buildings can sometimes be used in root protection area if consent is agreed by the local planning authority. This can be very useful if there is a robust existing hard surfacing in place. The method for installing the buildings, and assessment of whether ground protection is needed is to be agreed with the Arboriculturist and specified prior to installation.

5.0 **Protection of tree canopies:** Piling rigs and cranes are often used close to trees. Work must be carefully planned so that there is sufficient room to avoid hitting the canopy during transportation or operation. Arboricultural supervision may be required, however, it is the responsibility of the contractor to assess and plan the work. Any access facilitation pruning required is detailed in the tree surgery schedule.

6.0 The following bespoke method statements will be developed further post planning:

The following are draft and detailed in the Arboricultural method statement post planning which will be developed with close team working.

7.0 **Demolition of steps near T9:**

- When the steps are removed, roots with a larger diameter will be gently pulled away from the foundation (where possible) and wrapped in damp hessian This will be carried out in the presence of the arboriculturist. The digging will be carried out very carefully so that roots will be retained. Roots just under the slab will be protected temporarily with damp hessian and a blinding layer of soil. Great care will be taken to avoid scuffing any roots and attempts will be made to retain bundles of fibrous roots.
- The foundation excavation work will not take place in frost or hot dry weather.

- The tree side of the trench exposed by demolition will be backfilled with topsoil from site.

8.0 **New soft landscaping:** Within the root protection areas of trees to be retained, the preparation of soil for planting and turfing will be carried out by hand. Cultivation will be kept to a minimum and new topsoil must not exceed 100mm in depth in the root protection areas, with no increase within 300mm of the stem. Top soil and other materials will be transported by wheelbarrow on running boards when working near trees. Enriched biochar to supplier's recommendations (typically 5% of soil volume) is advised to assist the establishment of new planting.

Appendix 7

Tree related legislation and National Policy

1. Tree preservation orders

The Town and Country Planning (Tree Preservation) (England) Regulations 2012.

Tree preservation orders protect lime and beech in this garden. This means that no work to the trees can take place (other than listed in this report) without consent from the Local Planning Authority. Applications typically take eight weeks to process. Works listed in this report do not require separate consent, provided that all the pre-commencement conditions have been discharged from a full planning approval relating to this report. The exception to this is works which are not required to facilitate planning consent. These are clearly identified within the tree surgery schedule and will need separate consent.

2. **Conservation Area**

The site lies in Fitzjohn's Netherhall Conservation Area. This means that no work can take place to trees (over 75mm at 1.5m) unless 6 weeks' notice of intent to carry out work is sent to the Local Planning Authority (LPA). The LPA can either raise no objection, or if they consider that the proposed works are detrimental to the visual amenity of the area, they will serve a Tree Preservation Order. Works listed in this report do not require separate consent, provided that all the pre-commencement conditions have been discharged from a full planning approval relating to this report.

3. Ecological considerations

The Wildlife and Countryside Act 1981, as amended, The Conservation of Habitats and Species Regulations 2010 and the Countryside and Rights of Way Act 2000, provide statutory protection to species of flora and fauna including birds, bats and other species that are associated with trees.

4. Occupiers Liability Act 1957 and 1984

The Occupiers Liability Act (1957 and 1984) places a duty of care to ensure that no reasonably foreseeable harm takes place due to tree defects. Therefore, this report includes recommendations within the tree tables for work required for safety reasons. 'Common sense risk management of tree (National Tree Safety Group 2012)' states that *'The owner of the land on which a tree stands, together with any party who has control over the tree's management, owes a duty of care at Common Law to all people who might be injured by the tree. The duty of care is to take reasonable care to avoid acts or omissions that cause a reasonably foreseeable risk of injury to persons or property'.*

5. Common law

This enables pruning back to the boundary line providing the work is reasonable. Other restrictions, such as tree preservation orders/conservation areas still apply.

The owner of a tree is not obliged to trim their trees or hedges to prevent them from crossing over a boundary. Whilst the tree owner is not obliged to cut back the branches, the person whose property is overhung has the right to cut back the branches to the boundary providing there are no planning or legal restrictions on the trees such as Tree Protection Orders or if they are located in a church yard, in which case suitable consent must be obtained. Such pruning works must be undertaken to a suitable standard and must not cause damage to the tree.

The resulting debris remains the property of the tree owner, but you must not cause any damage to their property when returning it back to them and you do not have the right to trespass on the tree owner's property in carrying out the works. In the interests of good neighbourly relations, we would encourage neighbours to discuss their intentions with each other before carrying out such works, providing the work is reasonable and that the trees are not subject to TPO or Conservation Area protection.

8. Veteran Trees

"The term veteran tree is one that is not capable of precise definition but it encompasses trees defined by three guiding principles: trees of interest biologically, aesthetically or culturally because of their age; trees in the ancient stage of their life; trees that are old relative to others of the same species."*

There are no veteran trees on, or immediately adjacent to the site.

*(English Nature (200) Veteran Trees – A Guide to Good Management. [Online]. [Accessed 21st March 219]. Available from: http://publications.naturalengland.org.uk/publication/75035)

National Policy

The National Planning Policy Framework July 2021

Habitats and biodiversity 179.

To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;

b) and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

180. When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location
proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy
exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

The London Plan 2021

Policy G7 Trees and woodlands

A London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.

B In their Development Plans, boroughs should:

1) protect 'veteran' trees and ancient woodland where these are not already part of a protected site[139]

2) identify opportunities for tree planting in strategic locations.

C Development proposals should ensure that, wherever possible, existing trees of value are retained.[140] If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

139 Forestry Commission/Natural England (2018): Ancient woodland and veteran trees; protecting them from development, https://www.gov.uk/guidance/planning-applications-affecting-trees-and-woodland

140 Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012

Camden Local Plan 2017

Policy A3

Trees and vegetation

The Council will protect, and seek to secure additional, trees and vegetation.

We will:

j. resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;

k. require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;

l. expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these

trees and vegetation has been justified in the context of the proposed development;

m. expect developments to incorporate additional trees and vegetation wherever possible.

Appendix 8

Statement of methodology and reference material

Statement of methodology

Review of supplied plans and information

Site visit made by Sharon Durdant-Hollamby on 6th October 2023. Discussion with owner on site and subsequent communication with architect. TPO check made.

Tree survey using Visual Tree Assessment carried out in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations'* (BS). All investigations were from ground level only and binoculars were used when necessary. All trees with a trunk diameter of 75mm or above were surveyed. Obvious hedges and shrub masses were identified where appropriate. Information collected is in accordance with recommendations in subsection 4.4.2.5 of BS and include species, height, diameter, branch spread, crown clearance, age class, physiological condition, structural condition and remaining contribution. Each tree was then allocated one of four categories (U, A, B or C).

Received material

23_01_ E00 Topo

31174 SK01 & 02 Option 1 v1

23_01_D08 OPT 2 Proposed Lower Ground Fl

23_01_ P06 Side (NE) Elevation

23_01_ P05 Side (SW) Elevation

23_01_ P04 Proposed Rear (SE) Elevation

23_01_ E01 Ground Floor Plan

Reviewed text

BSI. BS 3998:2010 *Tree work-Recommendations.*

BSI. BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*

R.G.Strouts and T.G.Winter 'Diagnosis of ill-health in trees' TSO 1994

London Borough of Camden website

C. Mattheck 'The body language of trees' 2015

Arboricultural Association Guidance Note 12 'The use of Cellular Confinement Systems Near Trees

Appendix 9

Caveats & Exclusions

Specific report caveats

1. At the time of writing this report, the protected tree status is correct. However, this can change. Therefore, I advise that a further check is made with London Borough of Camden before any works to trees take place.
2. No internal diagnostic equipment was used other than a sounding mallet and probe and all inspections were from ground level only, with the aid of binoculars where necessary.
3. The survey is concerned solely with arboricultural issues.
4. Any changes in ground level, or excavations near to tree roots not discussed within this report may change the stability and condition of the trees and a further examination would be required.
5. As trees are a dynamic living organism this report is only valid for a period of 12 months, in respect to their health and condition.
6. Only the trees listed in this report have been examined.
7. The measure of offsite trees has been estimated, except any crown within the site overhang which is measured. Where the crown of an onsite tree overhangs the boundary, the crown spread in this direction is also estimated.
8. The base and trunk of the offsite trees could not be examined, and therefore a full assessment of the trees condition could not be made.
9. Dense ivy and undergrowth prevent a full condition survey being carried out. The vegetation may be hiding structural defects.
10. The tree information is from the time of the survey. Some pests, diseases and fungi only appear seasonally, therefore it is possible not all issues that may affect the health of the trees could be observed.

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Appendix 10

Experience and qualifications of author

Sharon Hosegood ASSOCIATES

Sharon Durdant-Hollamby

FICFor FArbor A BSc (Hons) Tech Cert Arbor A

Myerscough College & University Centre INSPIRING EXCELLENCE

CARDIFF UNIVERSITY LAW SCHOOL BOND SOLON CIVIL Expert Certificate

Institute of Chartered Foresters Registered Consultant

Arboricultural ASSOCIATION Fellow Member

Profile

Sharon is an Expert Witness, chartered arboriculturist and Director of Sharon Hosegood Associates Ltd. Sharon had eleven years' experience as a local government tree and landscape officer before joining a contractor as a tree consultant in 2005. In 2007 she formed an environmental practice in Essex with the owner. As managing director, she built up the ecological and arboricultural consultancy to a team of 20. She is a past President of the Institute of Chartered Foresters (May 2021 – April 2023). She joined Essex Quality Review Panel in May 2023 as an arboricultural expert.

Specialties:	Trees in relation to development, including appeals and planning hearings
	Tree root investigations, including TreeRadar
	Tree hazard evaluation
	Tree preservation orders
	Trees and well-being with community engagement
Professional bodies:	Immediate Past President of the Institute of Chartered Foresters Fellow of the Institute of Chartered Foresters (ICF) Fellow of the Arboricultural Association
Qualifications:	Cardiff University Law School Bond Solon Civil Expert Certificate Arboricultural Associations Technicians Certificate BSc (Hons) Geography and Landscape Studies Managing Safely IOSH (2017)
Awards:	Top student award for the Technician's certificate in 2005
	The Broomfield Hospital Woodland Management project she has managed between 2009 -2015 won the following awards: The Essex Biodiversity Awards (nomination) The Excellent Community Engagement Award (NHS Forest) Green Flag and Green Apple Award Highly commended for the Health Sector Journal Award 2013 Honorary College Fellow (Services to Arboriculture and Forestry) University Centre, Myerscough

Appendix 11

Glossary

Arboriculture	Formerly all aspects of the culture of trees, especially for forestry. Latterly, the art and science of cultivating and managing trees as groups and individuals, primarily for amenity and other non-forestry purpose**.**
Arboricultural method statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculturist	Person who has, through relevant education, training and experience in the field of trees in relation to construction.
Architecture	In a tree, a term describing the pattern of branching of the crown or root system.
Biochar	Biochar is charcoal used as a beneficial soil amendment enabling nutrient uptake and assisting the trees defense mechanism
Biodiversity	The variability among all living organisms of an ecological complex.
Biomechanical	Pertaining to the mechanical functions and properties of living organisms, such as trees.
Body language	In trees, the outward display of growth responses and/or deformation in response to mechanical stresses.
Branch	A limb extending from the main stem or parent branch of a tree.
Branch bark ridge	The raised arc of bark tissues that forms the acute angle between a branch and its parent stem
Branch collar	The swelling or roughened bark often found at the base of a branch which should be left intact if the branch is to be pruned off.
Canker	A lesion in which bark and cambium have been killed, sometimes exposing the wood and often showing a swollen appearance owing to the encircling growth of new tissues.
Canopy	The topmost layer of twigs and foliage in a tree.
Co-dominant	In trees, a similarity between two or more stems or branches with regard to their size and their position within the canopy.
Column	In the wood or phloem of a tree, an axially elongated zone of tissue that is distinguished form the surrounding tissue; e.g. Live verses dead or decayed versus non-decayed.
Construction exclusion zone	An area based on the root protection area from which access is prohibited for the duration of the project.
Crown	In arboriculture, the main foliage-bearing portion of a tree.
Crown lifting	The removal of shortening of the branches that form the lower part of the crown of a tree.
Crown reduction	Pruning in order to reduce the size of the crown of a tree.
Crown thinning	Pruning inside the crown of a tree in order to reduce its density.
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.
Dieback	The death of part of a plant, usually starting from a distal point and often progressing proximally in stages.
Direct damage	Direct physical damage to a structure of surface from pressure exerted by the trunk or growing roots.

Ecosystem services	The benefits that a particular species or range of species bestow upon others (including humans) though ecological relationships. Such services can sometimes be estimated in a form that allows them to be included in financial accounting.
Epicormic	Pertaining to shoots or roots which are initiated on mature woody stems; shoots can form tin this way from dormant buds or they can be adventitious.
Failure	In connection with tree hazards, a partial or total fracture within woody tissues or loss of cohesion between roots and soil.
Flush cut	A pruning cut close to the parent stem which removes part of the branch bark ridge.
Foreseeable	In hazard assessment, pertaining to failure and associated injury of damage which are predictable on the basis of evidence from a tree and its surroundings.
Fungi	Organisms of several evolutionary origins, most of which are multicellular and grow as branched filamentous cells within dead organic matter or living organisms.
Hazard	A thing, a process or a potential event that has the potential to cause harm.
Heartwood	The dead or predominantly dead central wood of various tree species whose outer living wood, sapwood, has a finite and pre-determined lifespan.
Independent in the landscape	Point at which a newly planted tree is no longer reliant on excessive or abnormal management intervention in order to grow and flourish with realistic prospects of achieving its full potential contribute to the landscape.
Level arm	A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch.
Landscape character	A distinct, recognisably and consistent pattern of elements in the landscape that make one landscape different from another, rather than better or worse.
Mulch	Material laid down over the rooting area of a tree or other plant to help conserve moisture, suppress weeds and encourage a beneficial microflora.
Mycorrhizal	Pertaining to an intimate symbiotic association between plant roots and specialised fungi.
PICUS	The Picus Sonic Tomograph is a non-invasive tool for assessing decay in trees. It works on the principle that sound waves passing through decay move more slowly than sound waves traversing solid wood. By sending sound waves from a number of points around a tree stem to a number of receiving points, the relative speed of the sound can be calculated and a two-dimensional image of the cross-section of the tree can be generated
Pollard	A term for a pollarded tree
Pollarding	The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches; also, further cutting to maintaining this growth pattern.
Probability	A statistical measure of the chance that a particular event (e.g. a specific failure of a tree or specific kind of harm to persons or property) might occur.
Resistograph	

	The IML-RESI system is based on the measurement of drilling resistance. The IML-RESI operates in a similar manner to a normal drill. A drilling needle with a diameter of 1.5mm is inserted into the wood under constant drive. While drilling, the resistance is measured as a function of the drilling depth of the needle. The data is printed and stored electronically at a scale of 1:1 simultaneously. Although invasive the relatively small needle diameter causes very little damage, testing is normally only undertaken to confirm the remaining stem wall thickness in decaying trees.
Retrenchment	Progressive reduction in the size of the crown of an old tree, by means of the dieback of breakage of twigs and small branches, accompanied by the enhanced development of the lower or inner parts of the crown.
Risks	The likelihood of the potential harm from a particular hazard becoming actual harm.
Root protection area	A layout tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. BS 5837:2012 *'Trees in relation to design, demolition and construction – Recommendations'.*
Root flare	Thickened and expanded base of s tree stem at ground level form which buttress roots form.
Rootplate	The central part of the root system of a tree, consisting of the large-diameter main roots and a dense mass of smaller roots and soil.
Service	In construction, any above-or below-ground structure o apparatus for utility provision.
SULE	Safe useful life expectancy of a tree (Barrell)
Stag-headed	In a tree, a state of dieback in which dead branches protrude beyond the current living crown.
Stress	In plant physiology, a condition under which one or more physiological functions are not operation within their optimum range, for example owing to lack of water, inadequate nutrition or extremes of temperature.
Stub cut	A pruning cut which is made at some length distal to the branch bark ridge.
Target pruning	The pruning of a twig or branch so that tissues recognisably belonging to the parent stem or branch are retained and not damaged.
Targets	In tree hazard assessment, persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it.
Tree Preservation Order	In Great Britain, an order made by a local authority, whereby the authority's consent is generally required for the cutting down, topping or lopping of specified trees.
Tree protection plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposal, showing trees for retention and illustrating the tree and landscape protection measures.
Utility	An undertaker by statute that has a legal right to provide customer services (e.g. communication, electricity, gas and water).

Veteran tree	*'A tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species'.* Ancient Tree Guide No. 4 (ATF, 2008).
Vigour	In tree assessment, an overall measure of the rate of shoot production, shoot extension or diameter growth.
Vitality	In tree assessment, an overall appraisal of physiological and biomechanical processes, in which high vitality equates with near-optimal function, in which high vitality equates with healthy function.
Visual Tree Assessment (VTA)	In addition to the literal meaning, a system expounded by Matteck and Breloer (1995) to aid the diagnosis of potential defects through visual signs and the application of mechanical criteria.
White-rot	Various kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded.
Wound	Injury caused to a tree by a physical force.

Sharon Hosegood
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ARBORICULTURAL IMPACT ASSESSMENT REPORT
BS 5837:2012 'Trees in relation to design, demolition and construction. Recommendations'

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