
Arboricultural Report and Impact Assessment

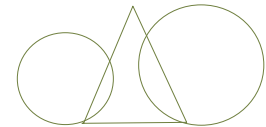
Site – Jade House, Common Lane, Letchmore Heath, Radlett, WD25 8EQ

Client – Mr Levenstein

Contact – Markcrow Architects

Date - 16-10-2023

To be read in conjunction with – Tree Survey Plan Drawing No. AA/JHS/01



Moore Partners Ltd

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1.0 Scope of works and client brief.

- 1.1 Mr Levenstein has requested a survey of the trees within the garden of Jade House. The survey is to accompany the planning application for demolition of the existing house, construction of a new dwelling, garage, and gym pavilion. The report should be read in conjunction with the tree constraints and protection plan, drawing number AA/JHS/01.
- 1.2 The report was to:
- assess the trees in line with BS5837:2012.
 - prepare tree constraints plan.
 - Address mitigation required as a result of the implications assessment.
 - Provide an outline tree protection plan to demonstrate what level of retention and protection of the trees is feasible.

2.0 Summary

- 2.1 The site is a large, detached building set in mature grounds. The front garden is laid to paving for car parking and is accessed directly from Common Lane. Along the front boundary, outside the existing boundary fence, there is a row of native trees forming a hedge line along the roadside. Within the site, in the front garden the trees are primarily cherries in the raised beds. Long the front and north boundary there is a laurel hedge. The rear garden has a large, paved terrace running along the rear elevation. There is a swimming pool in the southern corner. The remaining garden is laid to lawn. There are three high quality mature oak trees in the eastern corner. A mature eucalyptus is growing close to the rear elevation of the house. Along the north boundary there is a high-quality large ash tree, along with a holly and a hazel forming what appears to be an old hedge line in the adjacent garden. Close to the south boundary there is a large hybrid poplar, which has recently been heavily pruned. A full list of the trees is given in section 6 of this report.

The proposals are to demolish the existing house and construct a new dwelling, garage pavilion and gym pavilion. A new access from Common Lane and new landscaping, see the proposed plans by Markcrow architects.

A small section of the existing laurel hedge would be removed for the new access. The rest of the hedge would be retained and the loss of the small section for the gate would have a limited impact on the landscape or ecological value of the hedge. The native hedge to the east would be retained.

To facilitate the development 4 lower quality 'C' rated trees mainly fruit trees would be removed. Also, a poor-quality dead cherry. One 'B' rated eucalyptus tree, that is close to the existing house and due to which has been pruned in the past to contain the height and spread of the crown.

Access would be required over the root area of a holly and hazel, which are growing in the adjacent garden. The root zone within the site would be protected for the duration of the build with additional ground protection in line with BS5837, see section 7 of this report.

The hybrid poplar in the adjacent garden T19 would have the new brick garden wall which contains the west side of the courtyard and incorporates an outside fireplace and log store, within the root area. This tree has been heavily reduced in the past and has large cross-sectional wounds that are, due to the species, likely to be prone to decay. The crown clearance over the site is 6m above ground level, so the new wall would not impact on the crown. This construction would have a mini piled footing to minimise the impact on the roots of the tree T19. The root area within the site would be protected for the duration of the build with additional ground protection in line with BS5837 and drawing AA/JHS/01.

The building works are outside the crown spread and root protection areas of all the other trees. All the trees would be protected by a construction exclusion zone for the duration of the build, enclosed by tree protection fencing in line with BS5837.

The implications assessment chart, section 7 of this report, outlines the implications and mitigation required for each tree. This is not a full arboricultural method statement.

If the tree protection is installed in line with this report for the proposed works, it is considered there would not be an impact on the three most important trees within the site.

3.0 Site

3.1 The site is to the east side of Common Lane. It is a large, detached building set in mature grounds. The front garden is laid to paving for car parking and is accessed directly from Common Lane. Along the front boundary, outside the existing boundary fence, there is a row of native trees forming a hedge line along the roadside, a laurel hedge runs along the northern section. Within the site the trees in the front garden are primarily cherry trees in the raised beds. The rear garden has a large, paved terrace running along the rear elevation. There is a swimming pool in the southern corner. The remaining garden is laid to lawn. There are three high quality mature oak trees in the eastern corner. A mature eucalyptus is growing close to the rear elevation of the house. Along the north boundary there is a high-quality large ash tree, along with a holly and a hazel forming what appears to be an old hedge line in the adjacent garden. Close to the south boundary there is a large hybrid poplar, which has recently been heavily pruned.



fig 1 – survey site outlined in red.

3.2 Soils and levels

The site is relatively level. A desk top survey shows the soils in the area are slightly acid loamy and clayey soils with impeded drainage as shown by the Cranfield Soil Institute; source Landis.org. Bedrock geology is Lambeth Group - Clay, silt and sand, source British Geological Survey. This is a generic desk top analysis and not a detailed soil survey.

4.0 Statutory protection

4.1 Trees legislation

Tree Preservation Order (TPO)

Can be served on individual trees or groups of trees. The law requires written permission to be gained from the local authority prior to carrying out any works to a tree either above or below grounds. Failure to gain consent can be seen as wilful damage and lead to prosecution and significant fines. It remains the tree owner's responsibility to check TPO status prior to carrying out any works.

Conservation Area Order

If a site lies within a conservation area designated by the local authority, trees over 75mm in stem diameter 1.5m high, are afforded protection under this statutory designation. The local authority must be notified in writing of any proposed works to a tree in a conservation area, or any activity that could affect the above or below ground parts of the tree. They have 6 weeks in which to object to the proposed works. Failure to comply with this can lead to prosecution and a fine.

Town and Country Planning Act 1948

The local planning authority has duty to ensure that when granting planning permission 'adequate provision is made for the preservation and planting of trees. This can include imposing planning conditions.

National Planning Policy Framework Section 11

This states that 'the local planning system should contribute to and enhance the natural and local environment by protection and enhancing valued landscape.' This includes recognising the benefits of ecosystem services and protecting biodiversity through protection and enhancement.

4.2 Wildlife legislation

There are statutory protections on British fauna. In particular bats and nesting birds can be impacted on when undertaking works on and around trees. Any works to trees should carry out checks and comply with current legislation.

Bats

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

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

Birds

The Wildlife and Countryside Act 1981 makes it an offence to

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

Under **The Countryside Rights of Way Act** 'unknowingly' committing an offence is no longer a defence. It is therefore imperative that appropriate action is taken by the landowner, or contractor, prior to commencing any works on trees that could be potential nesting sites or bat roosting sites. This may include, but is not limited to, trees with cavities, splits or holes and heavy infestations of ivy, particularly in reference to bats. Appropriate risk assessments should be made before works commence by competent persons.

5.0 Proposed Development

- 5.1 The proposals are for the demolition of the existing house, the construction of a new dwelling, a garage pavilion and a gym pavilion. A new access off Common Lane and new landscaping including a garden wall to a courtyard area with log store and fire pit area, see Fig 2 and drawings by Markcrow Architect.



Fig 2 – Proposed site layout

- 5.2 Reference documents supplied. Changes to documentation could render this report invalid.

Drawing references	Author	Title	Date
219	Markcrow	Proposed site plan	Feb 23
219	Markcrow	Existing site plan	Feb 23
219	Markcrow	Floor plans	Feb 23
219	Markcrow	Elevations	Feb 23

6.0 Tree assessment

6.1 Survey method

The report is based on a ground level visual tree assessment, using recognised non-invasive techniques, (Mattheck). It is an external inspection only. Condition of the tree was assessed only on date of inspection. Physiological and structural assessments are valid for a period of no more 12 months. It remains valid only if no environmental changes occur around the tree. If any changes should occur, re-inspection should be carried out.

Environmental changes around the tree will render the report invalid.

There has been no assessment of potential for indirect damage because of soil heave or subsidence that trees may have on existing properties, this is outside the remit of this report.

No internal diagnostic equipment was used, and no pest and disease samples were taken or sent away for analysis. No soil samples were taken for testing. If Soil analysis is required, a soil engineer should be employed. There has been no examination of existing drains or service runs for the presence of roots. No trial pits were dug to examine roots at the time of the tree survey.

The trees were surveyed in line with the process laid out in BS5837:2012. The trees were assessed against the criteria laid out in the British Standard. Data was collated on species, age, height, crown spread, stem diameter at 1.5m high. A base line assessment of physiological and structural condition was made. All trees were categorised in line with BS5837:2012 guidance. Trees of the highest quality were rated 'A', good quality 'B'. Trees rated 'C'; are worthy of retention but of lower quality. Those given an 'R' rating are poor quality with either less than 10 useful life years remaining, small and of limited significance in the wider landscape, or could easily be replaced in a new landscape scheme with a tree of similar size and impact. Greater detail on the rating is given in the key in below.

Trees under 75mm in diameter were not recorded in line with BS5837 guidance. The details of the trees as required under BS5837:012 were recorded in tree data for this report.

Where trees have been noted for works an assessment of condition has been made but this survey is an overview and cannot be relied on as a full health and safety assessment of the trees.

A topographical survey was available for the tree positions within the site. The tree protection plan is based on this, and the current proposed site lay out available at the time of writing the report.

Key to survey schedule

Tree number on plan - T1 individual tree on the site

BS 5837:2012 Age class

Y – Young first third of life expectancy, EM – Early mature second third of life expectancy, Ma – Mature final third of life expectancy, OM – Over mature showing signs of senescence, V – Veteran over mature and of special conservation value

Remaining years in age bands - <10, 10-20, 20-40, >40

Physiological or structural condition - **Good** no significant health problems, or no significant structural problems, **Fair** some symptoms of ill health, or currently insignificant or remediable structural problems, **Poor** significant symptoms of ill health, or significant structural problems

Moribund (physiological only in serious and irreversible decline, **Dead** (physiological only) not alive

Other Abbreviations.

Esti estimated

M/S multi stem the number of stems and diameter are given in line with BS5837:2012 requirements.

N north, E east, S south, W west

BS 5837:2012 Category of quality/retention

Category	Description		
A Green	Trees of high quality A1 – Mainly arboricultural value A2 - Mainly landscape value A3 – Mainly cultural value, including conservation	C Grey	Trees of low quality C1 – Mainly arboricultural value C2 – Mainly landscape value. C3 – Mainly cultural value, including conservation
B Blue	Trees of moderate quality B1 – Mainly arboricultural value B2 - Mainly landscape value B3 – Mainly cultural value, including conservation	U red	Trees that are in a poor condition, so that any existing value will be lost in the next 10 years, and should, for reasons of sound arboricultural management, be removed.

6.2 Tree data

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
T1	<i>Alder</i> <i>Alnus cordata</i>	14	32	N 3.5 S 3.6 E 3.5 W 3.5	4.0	Em	Good	Fair	Na	40 +	B2
Located on the roadside outside the site boundary fence											
T2	<i>Cherry</i> <i>Prunus cvr</i>	2	17	N 0 S 2.0 E 2.0 W 0	1.8	Em	Fair	Fair	Na	10 – 20	C / u
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											
T3	<i>Cherry</i> <i>Prunus cvr</i>	3	11	N 1.2 S 1.2 E 1.2 W 1.2	1.8	Em	Fair	Fair	Na	10 – 20	C / u
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											
T4	<i>Cherry</i> <i>Prunus cvr</i>	23		N 2.5 S 2.5 E 2.5 W 1.0	1.8	Ma	Fair	Fair Has been crown reduced in the past	Na	10 – 20	C 3
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
T5	<i>Goat willow</i> <i>Salix caprea</i>	3	24	N 1.2 S 1.2 E 1.2 W 1.2	1.5	Ma	Fair Good regrowth	Fair Pollarded at 3m high	Na	10 – 20	C 3
A high-water demand species under NHBC classification											
T6	<i>Cherry</i> <i>Prunus cvr</i>	3	25	N 2.5 S 2.5 E 2.5 W 2.5	2	Mma	Fair	Fair Crown has been reduced in the past	Na	10 – 20	C 3
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											
T7	<i>Apple</i> <i>Malus domestica</i>	3.5	25	N 1.1 S 1.1 E 1.1 W 1.1	2.0	Ma	Fair	Fair Crowns have been regularly reduced	Na	10 – 20	C3
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											
T8	<i>Apple</i> <i>Malus domestica</i>	3.5	20	N 1.2 S 1.2 E 1.2 W 1.2	2.0	Ma	Fair	Fair Crowns have been regularly reduced	Na	10 – 20	C 3
The crown has been pruned regularly. A small tree with limited value in the wider landscape.											
T9	<i>Holly</i> <i>Ilex aquifolium</i>	10	Esti 4 x 18cm	N 5.0 S 4.0 E 2.5 W 2.5	Not over the site	Ma	Fair	Fair	Na	40 +	B 2,3

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
T10	<i>Hazel</i> <i>Corylus avellana</i>	9	Esti 10 x 10cm	N 4.0 S 2.5 E 4.0 W	3.0	Ma	Fair	Fair	Na	40 +	B 2,3
<p>Located in the neighbouring garden. Some of the measurements have been estimated due to the limited access and visibility.</p>											
T11	<i>Eucalyptus</i>	15	58	N 3.5 S 3.2 E 4.6 W 2.6	1.8 First main limb at 3.2m on the south side	Ma	Fair	Fair	Na	20 – 40	B
<p>a fast-growing large species, planted close to the existing house which has been crown reduced in the past. A high water demand species under NHBC</p>											
T12	<i>Silver birch</i> <i>Betula pendula</i>	7	16	N 1.5 S 2.0 E 2.0 W 1.0	2.0	Em	Fair / poor	Fair / poor	Na	10 – 20	C 3
<p>A small tree with limited value in the wider landscape.</p>											
T13	<i>Oak</i> <i>Quercus robur</i>	14	52	N 4.7 S 4.0 E 1.0 W 7.5	1.8 First main limb at 3.3m on the east side	Ma	Good	Fair Suppressed by G2	Na	40	B 2,3
<p>A high value tree in the rear garden. A high water demand species under NHBC classification.</p>											

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
T14	<i>Oak</i> <i>Quercus robur</i>	14	80	N 6.0 S 8.7 E 8.5 W 8.5	4.0 First main limb at 3.0m all round	Ma	Good	Good	Na	40 +	A 2,3
A high value tree in the rear garden. A high water demand species under NHBC classification											
T15	<i>Oak</i> <i>Quercus robur</i>	14	57	N 5.0 S 5.0 E 6.75 W 3.1	2.2 First main limb at 2.2m on the north/east side	Ma	Good	Fair	Na	40 +	B 2,3
A high water demand species under NHBC classification											
T16	<i>Pear</i> <i>Pyrus communis</i>	3	32	N 2.0 S 2.5 E 1.7 W 2.2	1.8 First main limb at 1.5m all round	Ma	Fair	Fair Crown has been reduced	Na	10 – 20	C 3
T17	<i>Cherry spp</i> <i>Prunus spp</i>	4.5	33	N 2.0 S 2.0 E 3.2 W 2.8	2	Ma	Dead	Poor	fell	<10	U

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
T18	<i>Ash</i> <i>Fraxinus excelsior</i>	16	Esti 4 x 50cm	N 9.0 S 8.5 E 7.5 W 7.5	3.0 First main limb at 3.0m on the east side	Ma	Good	Fair	Na	40	A 2,3
<p>A high value tree located in the neighbouring garden. Some of the measurements have been estimated due to the limited access and visibility.</p>											
T19	<i>Hybrid poplar</i> <i>Populus cvr</i>	18	Est 65	N 4.5 S 4.0 E W 4.0	6.0 First main limb at 6.0 on the west side	Ma	Fair Good regrowth	Fair Heavily reduced in the past, leaving large cross sectional wounds that due to the species are likely to be prone to future decay.	Na	20	B 2
<p>located in the neighbouring garden. Some of the measurements have been estimated due to the limited access and visibility. A high water demand species under NHBC classification.</p>											
T20	<i>Silver birch</i> <i>Betula pendula</i>	11	Est 38	N 6.0 S 5.5 E 5.0 W 6.75	3.2 First main limb at 3.0m on the east side	Ma	Good	Fair	Na	40	B 2,3
<p>Located on the front of the site in the neighbouring garden, highly visible in the street scene.</p>											
G1	<i>Field maple</i> <i>Elm</i> <i>Ash</i> <i>Lime</i>	5	22	As plan	3.0	Em Ma	Fair	Fair	Na	40	B 2,3
<p>Located along the front of the site on the road side verge. Appear to have been planted at a similar time, probably as a hedge, highly visible in the street scene.</p>											

No.	Species English & Latin	Approx Height (M)	Dia. @1.5 (CM)	Spread (M)	Height Crown Clearance (m)	Age Class	Physiological condition	Structural condition	Preliminary management recommendation	Years remaining	Category grading
H1	<i>Laurel</i> <i>Prunus laurocerasus</i>	2.5	Av 12	As plan	0	Em	Fair	Fair	Na	20 – 40	C2
H2	<i>Laurel</i> <i>Prunus laurocerasus</i>	2.5	Av 12	As plan	0	Em	Fair	Fair	Na	20 – 40	C2
H3	<i>Laurel</i> <i>Prunus laurocerasus</i>	2.2	Av 12	As plan	0	Em	Fair	Fair	Na	20 – 40	C2
H4	<i>Leyland cypress</i> <i>X Cupressocyparis</i> <i>leylandii</i>	3.0	Av 15	As plan	0	Em	Fair	Fair	Na	20 – 40	C2
A high water demand species under NHBC classification.											

7.0 Arboricultural Impact Assessment

7.1 The arboricultural impact is based on the following parameters.

- All trees that are to be retained will be protected by tree protection fencing in line with BS5837:2012 section 6.2.
- Should be read in conjunction with Tree Constraints and Protection Plan drawing number AA/JHS/01.

7.2 The root protection area (RPA) is an area of ground around the tree that should be retained, undisturbed, for the benefit of the tree roots. The RPA is calculated, as set out in BS5837:2012. This determines the square metres of ground area that should be retained. This is often shown as a circle, with a radius as determined by the calculation. However, it is not always essential that this is a circle, and, in some situations, the geography of the site can make an alternative shape more appropriate. It must still equate to the same area as the circle calculated under the approved calculation.

Tree no.		RPA m/sq	Radi of RPA (M)	Tree implications assessment	Mitigation
T1	Alder	48	3.9	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T2	Cherry	14	2.1	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T3	Cherry	5	1.2	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T4	Cherry	23	2.7	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T5	Goat willow	28	3.0	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection

					fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T6	cherry	23	2.7	Remove to facilitate the proposals.	A small tree with limited value in the wider landscape.
T7	Apple	28	3.0	Remove to facilitate the proposals.	A small tree with limited value in the wider landscape.
T8	Apple	18	2.4	Remove to facilitate the proposals.	A small tree with limited value in the wider landscape.
T9	Holly	59	4.3	The new building is outside the crown spread and root protection area. Some access will be required over the root protection area to facilitate the build off the garage.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01. The area of the RPA over which access is required will be protected for the duration of the build with additional ground protection. In line with BS5837 section 7.4 below and drawing AA/JHS/01.
T10	Hazel	45	3.8	The new building is outside the crown spread and root protection area. Some access will be required over the root protection area to facilitate the build off the garage.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01. The area of the RPA over which access is required will be protected for the duration of the build with additional ground protection. In line with BS5837 section 7.4 below and drawing AA/JHS/01.
T11	Eucalyptus	150	6.9	Remove to facilitate the new house and garage.	The tree is a high water demand species. It has the potential to be a very large tree near the existing house. It has been crown reduced in the past to contain the crown size due to the closeness to the existing house. Without the proposed works the tree would still require regular crown reductions due to the closeness to the house.

					<p>It is nonnative species, though it has some visibility in the wider landscape it is planted too close to the existing house and subsequently the new dwelling.</p> <p>A replacement tree should be planted in the new landscape scheme of a species and location agreed with the local authority.</p>
T12	Silver birch	14	2.1	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T13	Oak	124	6.3	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T14	Oak	290	9.6	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T15	Oak	150	6.9	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
T16	Pear	48	3.9	Remove to facilitate the proposals.	A small tree with limited value in the wider landscape.
T17	Cherry	48	3.9	U rated	
T18	Ash	452	12.0	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.

T19	Poplar	191	7.8	<p>Crown The new garden wall and log store is within the crown spread.</p> <p>Roots The new garden wall will be within the root protection area of the tree.</p>	<p>Crown The crown has been heavily reduced in the past. The crown has a good ground clearance of 6m above ground level which will clear the new wall.</p> <p>Roots The footings for the new wall will be a mini pile construction with an above ground beam see section 7.6 below to minimise the impact on the tree.</p> <p>The area of the RPA over which access is required will be protected for the duration of the build with additional ground protection. In line with BS5837 section 7.4 below and drawing AA/JHS/01.</p>
T20	Silver birch	64	4.5	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
G1	Field maple Elm Ash Lime		2.7	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
H1	Laurel		1.5	Remove a section for the new access.	The majority of the hedge will be retained and protected, only a section for the new access will be removed.
H2	Laurel		1.5	Remove to facilitate the proposals.	Limited value in the wider landscape.
H3	Laurel		1.5	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.

H4	Leyland cypress		2.1	Distant enough from the proposals not to be affected.	Protect the tree with a construction exclusion zone (CEZ) for the duration of the build. Enclosed with tree protection fencing, in line with BS5837, section 7.3 below and drawing AA/JHS/01.
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7.3 Tree Protection Fencing and Exclusion zone

The root protection areas (RPA) of retained trees should be protected for the duration of the build with tree protection fencing, in line with BS5837:2012, and prior to the developer commencing on site. The fencing is to be of 1.8m steel mesh, heras fencing, to be installed as detailed in BS5837:2012 section 6.3.2 figure 3. (See appendix 1). Once erected, the fencing will have all weather notices attached to the barrier worded "Construction Exclusion Zone –Keep out". The fencing will not be moved without prior written consent from the local authority.

7.4 Additional ground protection

Where access is required over an RPA to facilitate the build, additional ground protection in line with BS5837:2012. This should be as follows: For pedestrian access only, a single thickness of scaffold board either, suspended on a driven scaffold frame to form a suspended walkway, or on a non-compressible layer (e.g. 100mm layer of bark mulch) laid over a geotextile.

For pedestrian operated plant, up to a gross weight of 2t, proprietary inter linked ground protection boards, placed on a non-compressible layer (e.g. 100mm layer of bark mulch) laid over a geotextile.

For wheeled or tracked plant over 2t in gross weight, an alternative system (e.g. proprietary system or pre-cast reinforced concrete slabs) to an engineering specification, designed to accommodate the likely load it will be subject to, is required.

7.5 Demolition

If the existing out building is to be demolished within the root protection area and the crown T19. Demolition of the building will be carried out off existing hard surface and from outside the RPA. It will be undertaken to work inwards within the footprint and away from the tree 'top down, pull back'. If there is significant build-up of dust on the foliage, it will be hosed down to wash the dust off. Where there are under ground structures within the RPA, they will be left in situ if possible, if not they will be removed to a depth of 300mm to minimize damage to surrounding roots.

7.6 Footings

If trial excavations show the presence of the roots where any proposed walls are within the root protection areas (RPA) of retained tree, the footings should adhere to the following in line with BS5837:2012. For encroachment into the root area (RPA) of retained tree this recommends that root damage is minimised by using a piled footing. Site investigation should be carried out by hand or with compressed air tools, to determine the location of the piles, to avoid roots important for the structural stability of the tree. The piling machine will be the smallest practicable machine and will work off ground protection piling mats. It will be lowered when manoeuvring between piling operations when close to the crown of the tree.

The beams should be laid at or above ground level and cantilevered as necessary to avoid roots identified by the site investigation to minimise disturbance into the root zone.

If no roots are found in the presence of trail pits, due to the footings of the existing garage, then trenching for footings or beams could be used.

7.7 Utilities service trenches

Any new Utilities trenches should where possible avoid the RPA's of retained trees and follow the line of the new access drive. If a service route cannot avoid the RPA of a retained tree, it should be installed in one of the following two ways, to avoid excavation with machinery in the RPA or precautionary area:

For short runs, the service trench will be carefully excavated by hand. Any roots over 25mm will be retained and protected by wrapping in damp Hessian. Any roots less than 25mm in diameter, which cannot be preserved, will be pruned cleanly with a sharp saw or secateurs or hand saw, by a suitably qualified person. Exposed roots will be covered with damp Hessian and sharp sand. Back fill is to be of excavated soil or an inert granular fill.

For long runs, a trenchless installation method, such as directional drilling or impact moling, is to be used. Retrieval and access chambers should be located outside the RPA of the trees.

The works should comply with current safety practices for excavating trenches.

7.8 New hard surfaces within RPA

Any new hard surface within the root zone should also be a no-dig construction. They should be designed by the architect or engineer to comply with the following within the RPA of the retained trees.

The new parking will be designed by the engineer to comply with the following within the RPA of the retained trees.

There will be no excavation into the soil within the root protection area.

The grass sward is to be removed by hand along with any rocks, debris or organic matter. Create a level surface by filling hollows with clean angular stone or sharp sand.

A geotextile will be laid over the surface of the soil, at the existing level, over lapping joints by 300mm. A cellular subbase, of cellweb root protection system or similar, will be laid over the area. This will be at a depth as advised by an engineer

This will be filled with clean angular stones type 4/20 or 20/40, with no fines. Minimum 25mm over fill.

This should not be tipped within the root area and should be spread from one end, by hand.

Use a light roller to encourage settlement do not use a whacker plate

Excavations for kerbs should be avoided within the root zone. The edgings should be designed as wooden sleepers, kerb edges over the cellular confinement system plastic or metal edgings. that the roots are not damaged.

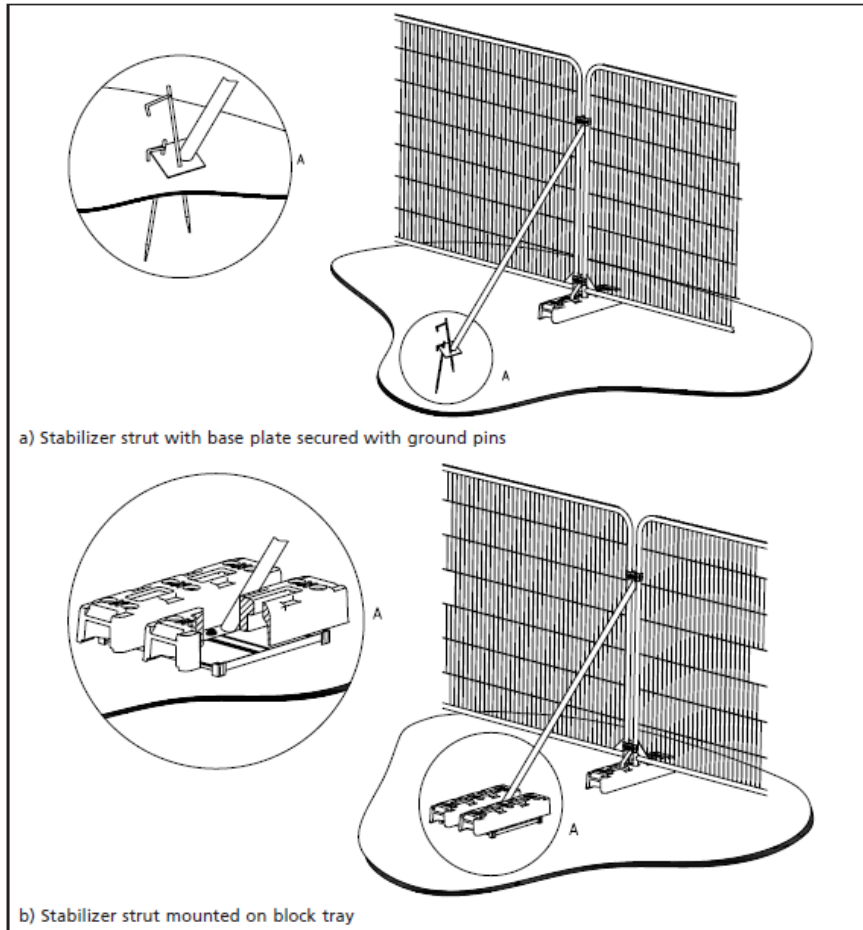
The surface finish will be a porous allowing water and air to percolate through the joints.

7.9 Ground levels

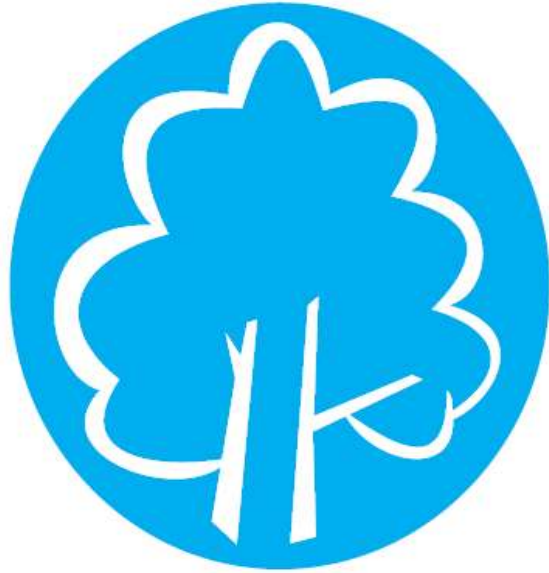
There will no changes in ground levels, within the root area of any retained tree.

Appendix 1 – Protective fencing

Figure 3 Examples of above-ground stabilizing systems



Tree protection fencing should be installed in the position as shown in the tree constraints and protection plan for the site.



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

Signage for the tree Protection Fencing to be placed on each run

Appendix 2 – Report Caveats

1. The report is based on a ground level visual tree assessment (Mattheck).
2. No soil samples were taken for testing. If Soil analysis is required a soil engineer should be employed.
3. No pest and disease samples were taken or sent away for analysis.
4. It remains the responsibility of the tree owner to check TPO status prior to carrying out any works on the tree.
5. Physiological and structural assessments are valid for a period of 12 months. It is an external inspection only.
6. VTA of the tree was assessed only on date of inspection; it remains valid only if no environmental changes around the tree. If any changes should occur re-inspection should be carried out.
7. Environmental changes around the tree will render the report invalid.
8. No internal diagnostic equipment was used.
9. Any works to the trees should comply with BS3998:2010 Tree Work

Appendix 3 – References

BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.

NHBC Chapter 4.2 Building near trees

D Lonsdale 'Principles of Tree Hazard Assessment and Management'
Forestry Commission 2007

Strouts and Winter 'Diagnosis of ill health in trees'
Forestry Commission 2007

C Mattheck and H Breloer 'Body Language of Trees'