

Arboricultural Report and Arboricultural Implications Assessment REV D

Site – 4A Kendal Ave, Epping, Essex,

Client – Clear Architects

**Contact – Clear Architects, The Studio, 38 Church Hill,
Loughton, Essex IG10 1LA**

Date of survey - 29-03-17

Revised – 07-05-19

**To be read in conjunction with –
Tree Survey Plan Drawing No. CA/4AKA/01 and**

Prepared by J M Moore BSc (hort) Dip Arb (RFS) Tech Cert (Arbor A) M Arbor A

Blue House Cottage
Maldon Rd Mob - 07912 617939
Bradwell on Sea
Essex CM0 7HR
judith.moore@moorepartners.co.uk
www.moorepartners.plus.com



Moore Partners Ltd

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BS5837:20012 Tree Assessment and AIA

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1.0 Instruction and client brief

- 1.1 Clear Architects have requested a survey of the trees within the site at 4A Kendal Avenue. The survey is to support the planning application for the demolition of the existing building and construction of 2 new dwellings. The report should be read in conjunction with the tree protection plan, drawing number CA/4AKA/01
- 1.2 The report was to:
- assess the trees in line with BS5837:2012
 - advise of the arboricultural implications that the proposed building works will have on the existing trees, in line with BS5837:2012 based on the site layout provided.
- 1.3 The report was revised on 07-11-17 to allow for the car park basement and car lift and change to the drive entrance.

2.0 Scope of works and survey method

- 2.1 The trees were surveyed in line with the process laid out in BS5837:2012. 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 section 6 of this report. Implications resulting from the proposed development are given in section 7 of the report and the tree constraints and protection plan.
- 2.2 The report is based on a ground level visual tree assessment, using recognised non-invasive techniques, (Mattheck). Condition of the tree was assessed only on date of inspection; it remains valid only if no environmental changes occur around the tree. If any changes should occur, re-inspection should be carried out. Physiological and structural assessments are valid for a period of 12 months. It is an external inspection only. Environmental changes around the tree will render the report invalid.
- 2.3 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.
- 2.4 There has been a check with the local authority of the tree protection status of the site. It remains the responsibility of the tree owner to check TPO status, prior to carrying out any works on the tree.
- 2.5 Any works to the trees should comply with BS3998:2010 Tree Work
- 2.6 A topographical survey was available for the site. The tree protection plan is based on this.

3.0 Site

- 3.1 The site is to the south west side of Kendal Avenue. It is a detached house accessed from Kendal Avenue by an in-out drive. The front garden is laid to lawn and hard surface for parking. The rear garden is laid mostly to lawn.
- 3.2 Within the front garden are three mature trees. It is understood that these trees are covered by a Tree Preservation Order by Epping Forest District Council, as such written permission is required from them prior to any works being carried out on the trees.
- 3.3 Ground levels within the rear of the site are relatively level. In the front garden, the levels fall about 1.3m in height from the house down to the highway.

4.0 Proposed Development

- 4.1 The proposal is for the demolition of the existing house. The construction of 2 new semi detached houses, with parking and associated landscaping.
- 4.2 See drawings 292-PL-01 and 292-XPP-100 by Clear Architects.

5.0 Tree assessment (For further detail see appendix 1)

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>Lawson cypress</i> <i>Chaemacyparis</i> <i>lawsoniana</i>	10	15 10	N 1.1 S 0 E 1.1 W 1.2	2.2	Y	Fair	Poor Suppressed on one side.		10-20	c/u
The tree is located on the boundary, ownership is not clear. A high water demand species under NHBC guidance.											
T2	<i>Lawson cypress</i> <i>Chaemacyparis</i> <i>lawsoniana</i>	12	38 15 10 10	N 2.3 S 2.3 E 2.3 W 2.3	2	ma	Fair	Fair	Na	10-20	C
The tree is located on the boundary, ownership is not clear. A high water demand species under NHBC guidance.											
T3	<i>Lawson cypress</i> <i>Chaemacyparis</i> <i>lawsoniana</i>	12	38	N 1.0 S 2.2 E 2 W 2	0	ma	Fair	Fair	Na	10-20	C
The tree is located on the boundary, ownership is not clear. A high water demand species under NHBC guidance.											
T4	<i>Lawson cypress</i> <i>Chaemacyparis</i> <i>lawsoniana</i>	9	19	N 0 S 1 E 0 W 1	1	Y	Poor	Poor	Na	>10	U
The tree is located on the boundary, ownership is not clear. A high water demand species under NHBC guidance.											

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>Sycamore</i> <i>Acer psuedoplatanus</i>	12	58	N 6.75 S 5.75 E 4.5 W 3.4	4 First main limb at 4.5m over the site	Ma	Fair	Fair	Na	40+	B1,2,3
The tree is protected by a tree preservation order. Located on the front of the site, visible in the wider landscape.											
T6	<i>Sycamore</i> <i>Acer psuedoplatanus</i>	12.5	56	N 6.5 S 5.25 E 3.0 W 2.75	3.5 First main limb at 3.5m high over the site	Ma	Fair	Fair	Na	40+	B1,2,3
The tree is protected by a tree preservation order. Located on the front of the site, visible in the wider landscape.											
T7	<i>Lime</i> <i>Tilia cordata</i>	14	58	N 5.0 S 4.6 E 2.3 W 6.3	2 First main limb at 4.7m high over the garden.	Ma	Fair	Fair	Na	40+	B1,2,3
The tree is protected by a tree preservation order. Located on the front of the site, visible in the wider landscape.											
T8	<i>Weeping Silver birch</i> <i>Betula youngii</i>	4	22	N 3.5 S 3.2 E 2.5 W 4.5	2.2 First main limb at 2m high on east side.	Ma	Fair	Fair	Na	10-20	C
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
T9	<i>Hornbeam</i> <i>Carpinus betulus</i>	5	21	N 1.8 S 3.75 E 2.3 W 1.8	2.2	Em	Fair	Fair Pruned away from the adjacent house in the past.	Na	20-40	C3
Located close to the adjacent, neighbouring house.											
T10	<i>Lawson cypress</i> <i>Chaemacyparis</i> <i>lawsoniana</i>	15	41 13 13 13 13	N 4.4 S 4.4 E 3.3 W 3.0	0 First main limb at 0m high on all sides	Ma	Good	Fair	Na	20-40	B2
T11	<i>Lime</i> <i>Tilia cordata</i>	6	45	N 2 S 2 E 2 W 2	4.5 high	Ma	Fair	Fair A pollarded tree	Na	20-40	C1,2,3
T12	<i>Ash</i> <i>Fraxinus excelsior</i>	9	50	N 8.6 S 3.0 E 6.5 W 8.5	2.2	Ma	Fair	Fair	Na	40	B2,3
The ground levels falls steeply to the east side into next garden. A main fork at 2.2m high with 4 codominant limbs above this point.											

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
T13	<i>Cherry</i> <i>Prunus cvr</i>	5	10 10 20	N 2 S 2 E 0 W 3.5	2 First main limb at 1.8m high on east side.	Ma	Fair	Fair	Na	10-20	C3
T14	<i>Cherry</i> <i>Prunus cvr</i>	5	18 18	N 2 S 2 E 2.5 W 3.0	2 First main limb at 1.8m high on east side.	Ma	Fair	Fair	Na	10-20	C3
T15	<i>Lawson cypress</i> <i>Chaemacypairs</i> <i>lawsoniana</i>	10	3no. x 15cm	N 0 S 2.5 E 3.0 W 3.0	2.2	Ma	Fair	Fair	Na	10-20	C2
Located in neighbouring property.											

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

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
B Blue	Trees of moderate quality B1 – Mainly arboricultural value B2 - Mainly landscape value B3 – 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
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.

Other Abbreviations.

Esti estimated

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

HCV high conservation value

N north, E east, S south, W west

6.0 Arboricultural Impact Assessment

- 6.1 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 CA/4AKA/01.
- 6.2 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	<i>Lawson cypress</i>	14	2.1	Remove to facilitate the development	
T2	<i>Lawson cypress</i>	85	5.2	Remove to facilitate the development	
T3	<i>Lawson cypress</i>	64	4.5	Remove to facilitate the development	
T4	<i>Lawson cypress</i>	U	U	Remove due to condition	
T5	<i>Sycamore</i>	150	6.9	<p>Crown Access for the build will be required under the crown.</p> <p>Roots The new building is outside the root area.</p> <p>The existing slope will be retained to protect the roots.</p>	<p>Crown The crown has a good ground clearance for access.</p> <p>Protect the trunk for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01</p> <p>Roots The new surfacing will be a no dig construction. It will have a geogrid sub base such as cellweb or similar. The surface treatment will be porous. Edges will be</p>

					<p>treated timber. See appendix 4.</p> <p>A section of the existing drive will be removed and replaced with soft landscape which will help improve root area. This will be excavated no deeper than the existing sub base.</p> <p>Any works to service runs within the root area will need to be hand dug, any roots over 25mm in diameter retained and protected in line with BS58387:2012.</p>
T6	<i>Sycamore</i>	137	6.6	<p>Crown Access for the build will be required under the crown.</p> <p>Roots The new building and basement are outside the root area.</p> <p>The existing slope will be retained to protect the roots.</p> <p>A small section of the extended drive encroaches into the edge of the root area.</p>	<p>Crown The crown has a good ground clearance for access.</p> <p>Roots Additional ground protection will be laid where the new drive will go until the drive is installed.</p> <p>The new surfacing will be a no dig construction. It will have a geogrid sub base such as cellweb or similar. The surface treatment will be porous. Edges will be treated timber. See appendix 4.</p> <p>Any works to service runs within the root area will need to be hand dug, any roots over 25mm in diameter retained and protected in line with BS58387:2012.</p>
T7	<i>Lime</i>	150	6.9	<p>Crown Access for the build will be required under the crown.</p> <p>Roots The new building and basement are outside the root area.</p>	<p>Crown The crown has a good ground clearance for access.</p> <p>Roots Additional ground protection will be laid where the new drive will go until</p>

				<p>The existing slope will be retained to protect the roots.</p> <p>A small section of the extended drive encroaches into the edge of the root area.</p>	<p>the drive is installed.</p> <p>The new surfacing will be a no dig construction. It will have a geogrid sub base such as cellweb or similar. The surface treatment will be porous. Edges will be treated timber. See appendix 4.</p> <p>The area at the entrance will require localised excavation to approximately 150-200mm to allow for the new no-dig drive to match existing highway levels. This will be carried out by hand with arboricultural supervision. Any roots over 25mm in diameter will be retained and protected under the new area of drive. Greater detail of the method will be provided in an arboricultural method statement.</p> <p>Any works to service runs within the root area will need to be hand dug, any roots over 25mm in diameter retained and protected in line with BS58387:2012.</p>
T8	<i>Weeping birch</i>	23	2.7	Remove to allow access for the build	A small tree with limited value in the wider landscape. Replacement tree to be planted in the rear garden.
T9	<i>Hornbeam</i>	18	2.4	Remove to allow access for the build	The tree is a large species that would be too close to the neighbouring house in time. Replacement tree to be planted in the rear garden.
T10	<i>Lawson cypress</i>	110	5.9	Distant enough from the proposals not to be affected.	Protect the tree for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01
T11	<i>Lime</i>	72	4.8	Distant enough from the proposals not to be affected.	Protect the tree for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01

T12	<i>Ash</i>	113	6.0	Distant enough from the proposals not to be affected.	Protect the tree for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01
T13	<i>Cherry</i>	27	3.0	Distant enough from the proposals not to be affected.	Protect the tree for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01
T14	<i>Cherry</i>	27	3.0	Distant enough from the proposals not to be affected.	Protect the tree for the duration of the build with tree protection fencing in line with BS5837:2012, appendix 2 of this report and drawing CA/4AKA/01
T15	<i>Lawson cypress</i>	40	3.5	Distant enough from the proposals not to be affected.	Protect the root area within the site with additional ground protection for the duration of the build.

Appendix 1 – Photographs



Trees T5 left to T7 right viewed from the highway



Trees T5 right to T7 left viewed from the garden.



Trees T1 to T4 along the boundary in centre of picture



Trees T8 and T9 viewed from within the site



T10 in rear garden



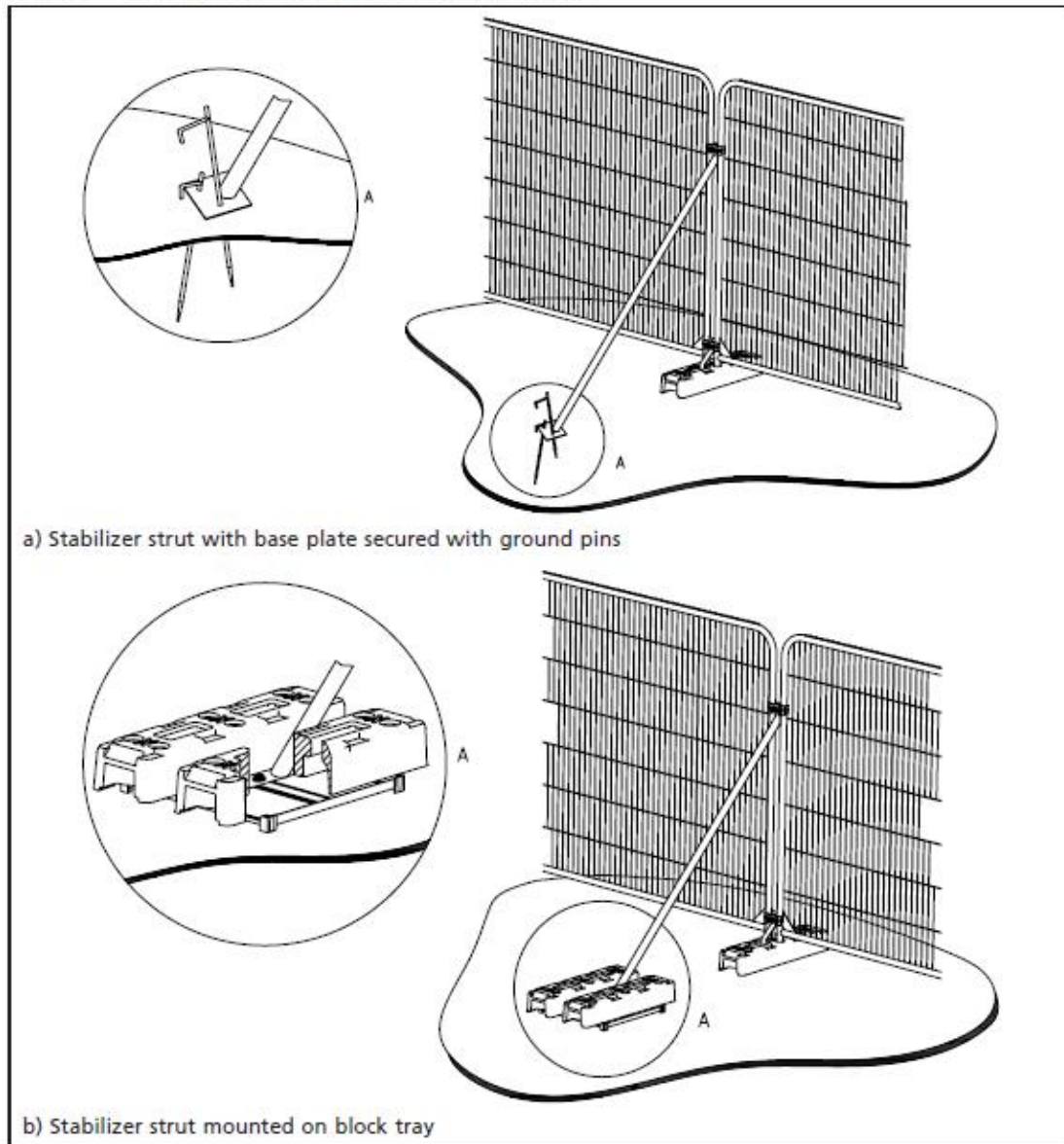
T11 pollarded lime



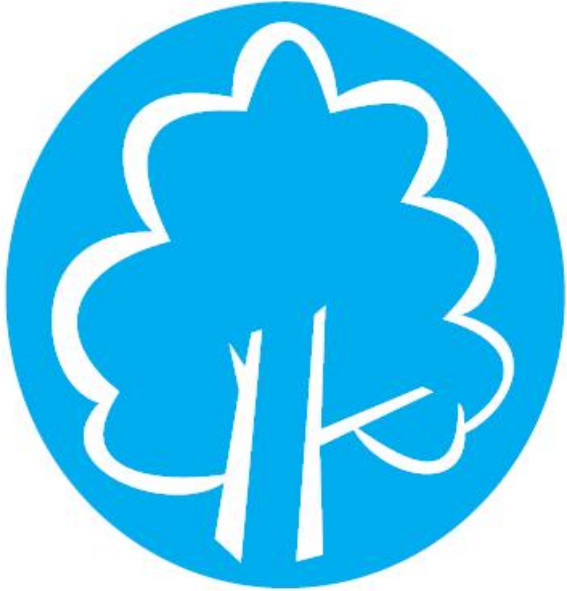
T12 ash in centre with T12 and T13 cherry to the left.

Appendix 2 – 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

Appendix 3 – Temporary ground protection

The area, as shown on drawing CA/4AKA/01, will be protected using additional ground protection, prior to commencing building and demolition works.

This will protect the roots, and the soil around them, from damage by compaction, spillage and excavation.

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 (eg 100mm layer of bark mulch) laid over a geotextile.

For pedestrian operated plant, up to a gross weight of 2 ton, 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 2 ton is 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.

Appendix 4 – Parking space cross section

Example only exact depth of cell web to be advised by engineer.

Localised excavation maybe required to match existing highway levels.

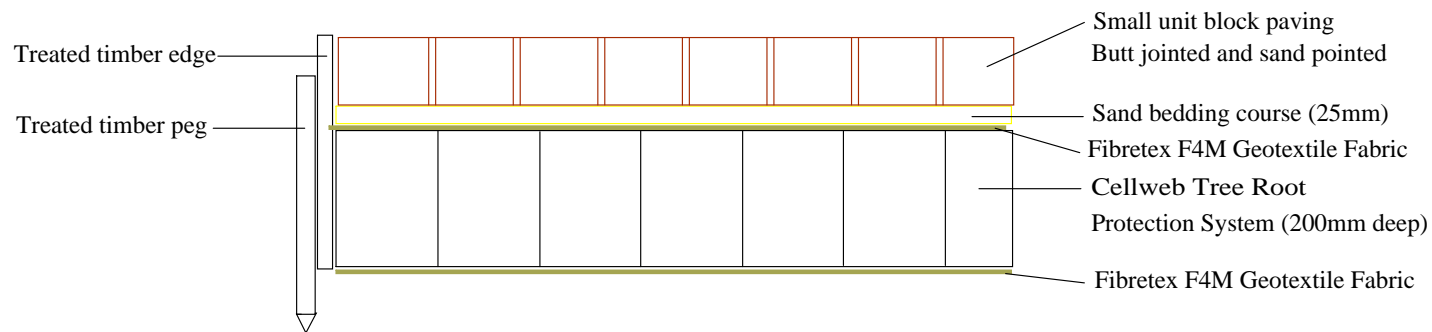
The driveway should be designed by an engineer to comply with the following. **There will be no excavation into the ground.**

The existing ground vegetation will removed by hand.

The driveway is to be laid on a geo-grid base, as shown below, laid onto the exiting ground level. Any low areas will be filled with sharp sand to level areas. The geo-grid will be backfilled with granular porous material, with no fines or similar. This should not be tipped on to the grid, but spread from one end, by hand. The surface treatment should be a porous tarmac or block paving.

All edging for these areas should be tanilised timber edging secured with wooden stakes as concrete kerb edgings would require damaging excavations into the root area.

The surface treatment should be a porous paving, allowing water and air to percolate through the joints.



Appendix 5 – 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 6 – 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'