



# BATSON Environment & Leisure Ltd.

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South Tyneside Council  
Area Planning Received  
14/09/2012

ST/1366/12/FUL

**Tree Report  
Cleadon Infants School  
Cleadon Village**



**Client:** Fits Architects Ltd.  
**Date:** 4<sup>th</sup> August 2012  
**Our ref:** 0006618

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## **1.0 Synopsis**

- 1.1** The former Cleadon Church of England Primary School site has previously been the subject of consideration for re-development, by the Local Planning Authority.
- 1.2** The trees growing within and immediately adjacent to the site were the subjects of a Survey and Report (Ref No. 0004490, dated 07<sup>th</sup> March 2008) and Amendment Report (Ref No. 0004990 / 04, dated 08<sup>th</sup> June 2009). These Reports formed part of the previous planning application documents.
- 1.3** The proposed development layout has been amended and a Tree Report has been requested in order to assess the impact of the revised proposals upon trees.

## **2.0 General**

- 2.1** A revised development plan for the former Cleadon Church of England Primary School shows that the footprints of the proposed dwellings and access roads have been amended.
- 2.2** It has been requested that a further Tree Report be prepared, to assess the current health and condition of the trees and the impact the amended proposals may have upon those trees.
- 2.3** The Trees within the site are subject to the Borough of South Tyneside Tree Preservation Order (No. 81) 2003.

## **3.0 Location**

- 3.1** Cleadon Church of England Primary School is located to the south east of Cleadon village centre. The site lies between Cleadon Lane and Shields Road (A1018).

## **4.0 Use & Purpose of Report**

- 4.1** The report has been prepared to meet requirements as set out within BS 5837:2012. This will assist and guide the Client, Architect and Local Planning Authority, to assess the impact and longer term effect of the proposed development upon the trees.
- 4.2** This report will:
  - 4.2.1** Assess the tree's health, condition and retention value.
  - 4.2.2** Assess the tree's visual amenity and landscape value.
  - 4.2.3** Assess existing ground constraints which may affect the future health and condition of the trees.
  - 4.2.4** Consider the impact the proposed development may have upon the trees.
  - 4.2.5** Consider the environmental impact of recommendations.

## **5.0 Site Survey**

- 5.1 The site was visited on 31<sup>st</sup> May 2012. At the time of inspection, weather conditions were inclement.
- 5.2 The report has been prepared on the basis of observations made during the site inspection. Appropriate tools and equipment were used to gather information, which was required for preparation of this report.

## **6.0 Observations**

- 6.1 The boundaries and hard surface areas are as described within the original Tree Report.
- 6.2 The large tarmacadam area appears to be in disrepair and the play equipment removed from the play areas.
- 6.3 The previously highly maintained tree, shrub and lawn areas, have become overgrown and are weed infested.
- 6.4 The site generally is semi-derelict in appearance.
- 6.5 The trees growing within and around the periphery of the site have marginally increased in size.

## **7.0 Tree Survey**

- 7.1 It is the trees growing within and immediately adjacent to the proposed development site, which form the subjects of this report.
- 7.2 For the purpose of this report, the trees have been separated into groups (e.g. G1, G2 and G3).
- 7.3 Individual specimen trees growing within the site have been tagged with a 'T' number (e.g. T771).
- 7.4 Trees growing outside of the site, immediately adjacent to its boundaries, have been identified with a 'TO' number (e.g. TO1).
- 7.5 The positions of the individual specimens are identified on Plan Dwg No. 0006618 / P2.

## **8.0 Wildlife Activity Within and Around the Trees**

- 8.1 At the time of inspection, there was evidence of bird activity within and around the trees.

## 9.0 Tree Schedule

### Group G1

Tree No.	Species	Age	Height (m)	Dia (mm)	Crown spread: north, south, east & west (m)	Bs colour category- sation	Estimated remaining life expectancy	Health & Condition	Detail	Recomm- endations
T799	Sorbus	Young	10	140	1, 2, 1, 1	Grey (c)	10+	Reasonable	Mower damage evident at base of trunk. Branch has previously been removed to the north, at a height of approx. 1m from ground level. Branching system starts at a height of approx. 1.5m. from ground level. Asymmetrical canopy, the majority of which is growing in a south westerly direction.	No immediate action required.
T798	Alder	Young	7	70	0.5, 0.5, 0.5, 0.5	Grey (c)	20+	Reasonable	Tree stake in contact with base of tree. Minor wounds present upon trunk.	Consider removal.
T797	Maple	Semi- mature	16	280	3, 2, 2, 3	Grey (a)	10+	Reasonable	Tree's trunk leans to the south. Tree has a clear straight stem up to a height of approx. 1.5m. from ground level, where a limb has previously been removed. A decaying stump remains with active cambium, however the wound has not fully occluded. Tree is in competition with surrounding specimens.	Monitor condition
T796	Sorbus	Young	12	140	0, 2, 1, 0.5	Grey (a)	10+	Reasonable	Bark wound evident to the east, at a height of approx. 0.25m from ground level. Tree has a clear stem up to a height of approx. 2m. where co-dominant stems are formed. One of the co-dominant stems splits into two, creating three main leaders. Tall and spindly specimen, growing in competition with surrounding trees.	No immediate action required.
T795	Sorbus	Young	14	140	0, 0.5, 0.5, 0.5	Grey (a)	10+	Reasonable	Tree has a slight lean to the west. Co-dominant stems formed at a height of approx. 2m. from ground level. Tall spindly specimen, growing in competition with surrounding trees. Majority of canopy growth is in a southerly direction.	No immediate action required.

T794	Whitebeam	Young	4	80	1, 1, 1, 1	Grey (a)	20+	Reasonable	Tree is of reasonably good shape, form and character. Minor damage evident at base of trunk.	No immediate action required
T793	Maple	Semi-mature	17	40	4, 4, 4, 4	Blue (a)	20+	Reasonable	Tree leans in a north westerly direction. Co-dominant stems formed at a height of approx. 2m. from ground level. Included bark evident at the point of union. Tree has been subject to pruning works which are not in accordance with good arboricultural practices.	Crown thin to reduce transpirational area
T792	Sorbus	Semi-mature	14	140	0.5, 1, 1, 1	Grey (c)	10+	Reasonable	Wound evident to the north west, at a height of approx. 0.75m. from ground level. Some occlusion has taken place. Minor bark damage present. Tall spindly specimen, growing in competition with surrounding trees.	Remove in order to enable development
T791	Fruit tree	Young	4	120	2, 2, 2, 2	Grey (c)	20+	Reasonable	Minor mower damage at base. Tree is of reasonable shape, form and character.	Remove in order to enable development
T790	Sycamore	Young	12	100	2, 2, 2, 2	Grey (c)	20+	Reasonable	Minor bark and mower damage evident on the trees trunk, to the north west.	Remove in order to enable development
T789	Whitebeam	Young	4	60	1, 1, 1, 1	Grey (c)	20+	Reasonable	Damage evident at base. Stake and tie restricting tree growth. Deadwood and snags present. Tree is growing in competition with surrounding specimens.	Remove in order to enable development.
T788	Fruit tree	Young	3	60	0.5, 0.5, 0.5, 0.5	Grey (c)	10+	Reasonable	Suppressed by adjacent Elder. Wound present at a height of approx. 2m from ground level.	Remove in order to enable development.
T787	Fruit tree	Semi-mature	9	150	4, 5, 3, 3	Grey (b)	20+	Reasonable	Vandalism evident upon trunk. Tree has a twisted, leaning, upper stem. Specimen is heavily suppressed by adjacent trees.	Remove in order to enable development.
T786	Maple	Semi-mature	14	360	5, 4, 3, 6	Grey (b)	10+	Reasonable	Trunk leans to the south east at an angle of approx. 20-30° from the vertical. Bark damage evident upon trunk. Pruning works have previously been undertaken, which are not in accordance with good arboricultural practices, resulting in a number of large, decaying snags. Tree is growing in competition with surrounding specimens.	Tree will require removal in order to enable development.

T785	Maple	Semi-mature	16	260	4, 4, 4, 3	Blue (a)	10+	Reasonable	Tree's trunk is reasonably vertical to a height of approx. 2m. from ground level. Upper stem leans in an easterly direction. Trees branching system starts at a height of approx. 3m. from ground level. Minor deadwood and snags present. Majority of canopy is to the south.	Crown thin to reduce transpirational area
T784	Whitebeam	Young	7	50	0.5, 0.5, 0.5, 0.5	Grey (a)	10+	Reasonable	Tree is of reasonable shape, form and character. Stake and tie restricting growth.	Remove stake and tie.
T783	Sorbus	Semi-mature	14	130	1, 2, 2, 2	Grey (a)	20+	Reasonable	Epicormal growths present. Tree is growing in competition with surrounding specimens and has an asymmetrical canopy.	Remove epicormal growths.
T782	Sycamore	Young	8	100	2, 2, 2, 2	Grey (a)	20+	Reasonable	Tree is growing in competition with and is suppressed by adjacent specimens.	Consider removal.
T781	Whitebeam	Young	5	60	0.5, 0.5, 0.5, 0.5	Grey (a)	10+	Reasonable	Decay and minor mower damage evident at base. Tree stake and tie restricting growth.	Remove stake and tie.
T780	Alder	Young	8	90	1, 1, 1, 1	Grey (a)	<10	Reasonable	Decay evident at base of tree Stake and tie restricting tree growth.	Monitor the trees condition.
T779	Fruit tree	Young	5	150	1, 0.5, 0.5, 0.5	Grey (a)	20+	Reasonable	Stake in contact with tree base.	Consider removal.
T778	Sycamore	Young	6	100	1, 1, 1, 1	Grey (a)	20+	Reasonable	Stake in contact with tree base. Tree has an asymmetrical canopy and in competition with surrounding specimens.	No action
T778 b	Cherry	Young	5	70	0.5, 0.5, 0.5, 0.5	Red	< 10	Reasonable	Extensive damage at trees' base. Heavy lean on tree, which appears to be in serious decline.	Remove and undertake replacement planting.
T777	Whitebeam	Young	6	50	0.5, 0.5, 0.5, 0.5	Grey (a)	20+	Reasonable	Minor decay at trees' base, however wound may occlude.	No immediate action required.
T776	Maple	Semi-mature	16	460	6, 5, 6, 5	Blue (a)	10+	Reasonable	Surface roots present. Co-dominant stems formed at a height of approx. 2m. from ground level. Included bark evident at the union. Tree's canopy overhangs adjacent highway.	Crown raise over highway.
T775	Sorbus	Young	12	110	0.2, 0.5, 0.5, 0.5	Grey (a)	10+	Reasonable	Tall spindly specimen. Evidence of minor damage upon tree's base. Epicormal growths present upon trunk.	No immediate action required.
T774	Sycamore	Young	12	180	0, 5, 2, 3	Grey (a)	10+	Reasonable	Damage evident to the north, at base of trunk. Co-dominant stems formed at a height of approx. 3m. from ground level. Majority of canopy growth is to the south, towards adjacent highway.	No immediate action required.

T773	Sycamore	Young	10	100	1, 2, 1, 1	Grey (a)	20+	Reasonable	Evidence of damage at base of trunk. Occlusion evident. Co-dominant stems formed at a height of approx. 2m. from ground level.	No immediate action required.
T772	Sycamore	Mature	17	310	0, 7, 6, 7	Blue (a)	10+	Reasonable	Co-dominant stems formed at a height of approx. 2.5m. from ground level. Wound present to the south, below union. Trees canopy and branching system overhang adjacent property	No immediate action required.
T771	Sycamore	Mature	20	480	8, 7, 3, 5	Blue (a)	10+	Reasonable	Co-dominant stems formed at a height of approx. 4m. from ground level. A cavity is present on the underside of the union, to the north. Evidence of minor past pruning works within trees canopy.	No immediate action required.
T770	Elder	Mature	5	240	3, 3, 2, 2	Grey (a)	<10	Poor	Multiple stems formed at a height of approx. 0.5m. from ground level.	No immediate action required.
T769	Sycamore	Semi-mature	16	250	5, 5, 6, 4	Grey (a)	10+	Reasonable	Multiple stemmed, self seeded specimen.	Remove smallest north western stem and growth suckers.



## Group G2

Tree No.	Species	Age	Height (m)	Dia (mm)	Crown spread: north, south, east & west (m)	Bs colour category- sation	Estimated remaining life expectancy	Health & Condition	Detail	Recomm- endations
T802	Horse Chestnut	Over- mature	4	700	0.5, 0.5, 0.5, 0.5	Grey (c)	< 10	Poor	Minor bark damage is present upon the southern side of the trunk, extending to a height of approx. 1.5m from ground level. Tree has been pollarded at a height of approx. 4m. from ground level. Remaining limbs are approximately 1m in length. Epicormal growths present, forming the canopy.	Remove and undertake replacement planting.
T801	Sycamore	Old mature	24	820	6, 7, 7, 7	Blue (b)	10+	Reasonable	Surface roots present. Large dominant specimen, growing within grassed area, adjacent to tarmac surface. Roots will be subject to containment and compaction to the north. Bulging evident at a height of approx. 3m. from ground level. Large spreading canopy, which is slightly suppressed to the east.	Crown thin to reduce transpirational area
T800	Sycamore	Mature	22	540	7, 7, 6.5, 8	Blue (b)	10+	Reasonable	Buttress roots present. Wounds present upon trees trunk, resulting from self-pruned / pruned branches. Tree has a clear stem up to a height of approx. 3m from ground level, where main branching system is formed. Canopy leaf cover is slightly sparse.	Crown thin to reduce transpirational area

**Group G3 - Trees Growing Outside of Site**

Tag No.	Species	Age	Approx dia. (mm)	Estimated remaining life expectancy	Health and Condition
TO1	Copper Beech	Semi-mature	640	40+	Tree growing within the grounds of the adjacent Vicarage, adjacent to the western boundary. Dominant specimen, of high visual amenity value.
TO2	Sycamore	Semi-mature	40	20+	Tree growing within the grounds of the adjacent Vicarage, adjacent to the south western corner of the site. The tree is also viewed from the adjacent highway.
TO3	Sycamore	Mature	560	20+	Local Authority street tree, located adjacent to the south western corner of the site. Dominant, multi-stemmed specimen.
TO4	Sycamore	Mature	430	10+	Tree growing within All Saints' Church, adjacent to boundary wall.
TO5	Sycamore	Mature	880	10+	Growing within All Saints' Church, adjacent to the boundary wall. Tree forms co-dominant stems at a height of approximately 1 metre from ground level.



## 10.0 Analysis Introduction

*10.1 The Tree Schedule (paragraph 9.0) outlines information on the physical attributes of individual specimens, together with recommendations.*

*10.2 The analysis examines the environment in which the trees are growing, together with other factors, which will impact upon, or influence the tree's current and future health and condition.*

## 11.0 Tree Analysis

### General

**11.1** The trees growing within the site are seen to have the effect of presenting a single, combined canopy. As the trees are growing adjacent to the public highway on both Cleadon Lane and Shields Road (A1018) they form part of the local 'street scene' and as those growing adjacent to the site's boundaries, form a visual 'softening' effect between the existing building and surrounding properties, they may be classified as being of high visual amenity and landscape value.

**11.2** Close inspection shows that many of the trees are growing in very close proximity with one another and as a result, they have grown to form etiolated specimens with suppressed, asymmetrical canopies. The competition for growth space and light between individual specimens has been detrimental to the development of their natural shape, form and character. Their visual amenity and landscape value has therefore, been reduced.

**11.2.1** The competitive environment, in which the trees' canopies and their rooting systems are growing, will result in stressful growing conditions. This in turn will result in an increased risk of fungal, pathogenic invasion and subsequent early decline in the health and condition of the trees..

**11.2.2** In order to improve the growing environment and amenity value of individual specimens, consideration should be given to 'phased' and 'selective' removal of the poorer quality specimens (i.e. specimens with suppressed or poorly formed branching systems).

**11.3** It appears from the proposed development plan (Ref No. 0006618-P2) that the majority of trees will not be directly affected by the development proposals.

### Proposed Extension to Existing Building

**11.4** It is proposed that an extension be constructed onto the western elevation of the existing building.

**11.4.1** The footprint of the proposed extension is seen to encroach into the Root Protection Areas (RPA's) of trees TO4 and TO5 (growing outside of the site).

**11.4.2** However, as the extension is within a similar footprint of a previous building, the rooting systems will have grown and developed to accommodate the footprint of the former building and hard standing area. Development of the proposed extension therefore, is unlikely to have any additional detrimental effect upon the future health and condition of these trees.

**11.4.3** It may be necessary to undertake minor pruning works in order to raise the canopies of these trees, to enable development works to be undertaken without future damage to their branching systems.

### **Proposed Dwellings**

**11.5** It is also proposed that two dwellings be developed within the southern section of the site.

**11.5.1** The footprints of these dwellings encroach into the RPA's of trees **TO1, T801, T800, T797** and **T793**.

**11.5.2** Encroachment by the proposed dwellings into the RPA's of trees **TO1, T801, T797** and **T793**, is minimal and therefore, unlikely to have a major detrimental effect upon the future health and condition of these trees.

**11.5.3** The footprint off the proposed dwelling to the north of the development site is seen to intrude into the western quadrants (approximately 12%) of the RPA of tree **T800**.

**11.5.4** In order to limit damage within the western quadrants of the rooting system of tree **T800**, consideration may be given to the use of 'mini-piles' and 'beams' within the RPA for construction purposes.

### **Existing Hard Surface Area**

**11.6 T800, T801 & T802.** The RPA's of each of these three trees is intruded, but, by less than 50% on their north eastern quadrants by existing hard surfacing.

**11.6.1** The proposed layout plan (Ref 0006618/P2 ) indicates that a considerable area of hard surfacing is to be removed from within the RPA of the eastern quadrants of tree **T800**. This will enlarge and improve the root growth environment for the tree and may compensate for the intrusion of the footprint of the proposed development into the western quadrants.

**11.6.2** As part of site clearance proposals, an area of hard surfacing is to be removed from the north eastern quadrants of tree **T801** and tree stump tree **T802**. This will be beneficial in the longer term to the future health and condition of tree **T801**.

**11.6.3** Tree stump **T802** is totally devoid of any natural shape, form and character for the species. 'Formative' or 'remedial' pruning works will not lead to an improvement the visual amenity or landscape value of the 'stump'. Consideration should therefore, be given to removal and replacement planting in agreement with the Local Planning Authority.

## **Proposed Access Road**

- 11.7** It may be seen from the development proposal plan that a new access road is to be formed by constructing an entrance, leading from Shields Road, through the middle of the site and onto the existing hard surface area.
- 11.8** The portion of access road, to the north east of trees **T800, T801** and tree stump **T802**, will be constructed within the existing hard surfaced area. The construction will therefore, have no additional detrimental effect upon the trees' current root growing environment. The root growth environment will be significantly improved particularly, within the eastern quadrants, by removal of large areas of hard surfacing.
- 11.9** The footprint of the proposed access road, leading from Shields Road, towards the 'hard surfaced area' shows that the access road does not intrude into the RPA of tree **T800**, but intrudes into the north western quadrant of RPA of tree **T801**.
- 11.9.1** As outlined in paragraph **11.7** there is a substantial area of the existing hard surfacing, to the east of the area is to be removed and therefore, the overall improvement to the existing root growth environment will greatly compensate for the intrusion (less than 20%) into the north western quadrant of the RPA.
- 11.9.2** The area to the south of tree **T801** is seen to be, open free root growth space, which is available for root growth and development.
- 11.10** As indicated within paragraph **11.1** the trees growing adjacent to Shields Road, when viewed for their overall canopy affect, are seen to be of high visual amenity and landscape value.
- 11.10.1** Close inspection shows however, there to be a number of small, young trees of varying species growing, within the group. These small trees are seen to be poor quality, suppressed specimens, which are over-shaded by the more dominant surrounding trees. Consideration may be given to their phased and selective removal and replacement planting, as part of an Approved Landscaping Scheme.
- 11.11** The footprint of the proposed access road and pedestrian footpath, off Shields Road, shows that removal of trees **T786, T787, T788, T789, T790, T791** and **T792** will be necessary.
- 11.11.1** As indicated within the Tree Schedule, paragraph 9.0, these trees are not good quality specimens and therefore will not develop into individual specimens of high quality, visual amenity and landscape value.
- 11.12** The footprint of the proposed access road intrudes into the RPA of tree **T793** and **T785**. However, as trees **T786, T787, T788, T789, T790, T791** and **T792**, are currently growing to the south east of tree **T793** and north of tree **T785**, there will currently be substantial competition for root growth space.

**11.12.1** The above trees are competing for canopy growth space with each other. This accounts for their poor quality appearance in shape, form and character. As the trees are also competing for root growth space, it is highly probable that the root growth of tree **T793** and **T785** will be contained and therefore, the RPAs' may be less extensive than indicated on plan (Ref 0006618/P2).

**11.12.2** It is proposed that intrusion into the RPA of tree **T793** and **T785** may not be as substantial as indicated on the plan (Ref 0006618/P2).

**11.12.3** In order to limit the impact of the access road on these mature trees, consideration should be given to a 'non dig' method of construction, together with use of 'semi permeable' materials.

**11.13** Development of the site will require excavations to accommodate underground services. It is therefore, highly likely that the natural ground water table levels within the site will be lowered.

**11.13.1** In order to minimise the detrimental effect of low ground water table levels and to ensure adequate moisture be more available to retained trees, consideration should be given to the implementation and location of surface water 'soak-a-way' systems.

## **12.0 Conclusion**

**12.1** It is proposed that the former Cleadon, Church of England Primary School property be re-developed for residential purposes.

**12.2** There are numerous trees of varying age and species, growing within the grounds of the site. It appears from the proposed development plan that a number of these trees will be directly affected by the development proposals.

**12.3** The proposed development presents an opportunity to remove poor quality, suppressed trees and replacement planting be carried out in agreement with the Local Planning Authority. Replacement planting will ensure the growth of better quality specimen trees and longer term continuity of tree cover within the Cleadon area.

## **13.0 Recommendations**

**13.1** Based upon the findings of the report, it is recommended that:

**13.1.1** This report be used as a Planning supporting document.

**13.1.2** Tree to be retained should be protected in accordance with BS 5837:20012, during construction works.

**13.1.3** Where trees require removal, replacement planting should be undertaken as part of an approved landscaping scheme.

## 14.0 Environmental Impact of Recommendations

14.1 The environmental impact of recommended works will result in the following:

14.1.1 The retained and replaced trees will:

14.1.1.1 Improve and enhance the visual amenity and landscape value of tree cover within the site.

14.1.1.2 Ensure long term continuity of tree cover within the area.

14.1.1.3 Act as 'Carbon Sinks' by removing Carbon Dioxide from the air.

14.1.1.4 Continue to provide and improve wildlife habitats.

## 15.0 Tree Root Protection Areas

15.1 In order to avoid damage to the roots or rooting environment of the trees, the Root Protection Area (RPA) should be plotted around retained trees. This is a minimum area, calculated in a radius from the centre of the tree, which should (where possible) remain undisturbed during the construction works.

15.2 The Root Protection Area's for the trees surveyed is shown within the following table:

## 16.0 RPA

Tag No:	Species:	DBH:	Advised root protection area (in accordance with BS 5837:2012). Distance in metres from the centre of the tree.
T802	Horse Chestnut	700	Tree Stump
T801	Sycamore	820	9.8
T800	Sycamore	540	6.5
T799	Sorbus	140	1.6
T798	Alder	70	0.9
T797	Maple	280	3.3
T796	Sorbus	140	1.7
T795	Sorbus	140	1.6
T794	Whitebeam	80	1.0
T793	Maple	40	4.8
T792	Sorbus	140	1.6
T791	Fruit tree	120	1.4
T790	Sycamore	100	1.2
T789	Whitebeam	60	0.8
T788	Fruit tree	60	0.7
T787	Fruit tree	150	1.8
T786	Maple	360	4.3
T785	Maple	260	3.2
T784	Whitebeam	50	0.6
T783	Sorbus	130	1.5
T782	Sycamore	100	1.1
T781	Whitebeam	60	0.7

T780	Alder	90	1.1
T779	Fruit tree	150	1.8
T778	Sycamore	100	1.2
T778b	Cherry	70	0.9
T777	Whitebeam	50	0.6
T776	Maple	460	5.5
T775	Sorbus	110	1.3
T774	Sycamore	180	2.1
T773	Sycamore	100	2.2
T772	Sycamore	310	3.7
T771	Sycamore	480	5.3
T770	Elder	240	2.9
T669	Sycamore	250	3.1
TO1	Copper Beech	640	7.6
TO2	Sycamore	40	4.8
TO3	Sycamore	560	6.7
TO4	Sycamore	430	5.2
TO5	Sycamore	880	10.5

16.1 Protective fencing should be constructed outside of the Root Protection Areas of retained trees.

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**For and on behalf of  
Batson Environment & Leisure Ltd.**





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## Appendix I

### Information Regarding Types of Protective Fencing and Barrier Types (BS: 5837: 2012 Part 6.2).

All trees to be retained on site should be protected by barriers or ground protection. The barriers should be erected before any materials or machinery are brought on site and should not be removed or altered without prior consent by a qualified Arborist.

Barriers should be fit for the purpose of excluding construction activity and appropriate to the level and proximity of work taken place around the trees. Barriers should remain rigid and complete.

In most cases, barriers should consist of scaffolding framework in accordance with Figure 2, below, which comprises of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at maximum intervals of 3 metres.

Should the site circumstances and the associated risk of damaging incursion into the RPA do not necessitate the default level of protection, it may be possible, for the project Arboriculturist to design an alternative specification, and where relevant agreed with the Local Planning Authority. For example 2m tall welded mesh panels on rubber or concrete feet, secured with two couplers and supported with stabiliser struts. See Figure 3.

Figure 2 Default specification for protective barrier

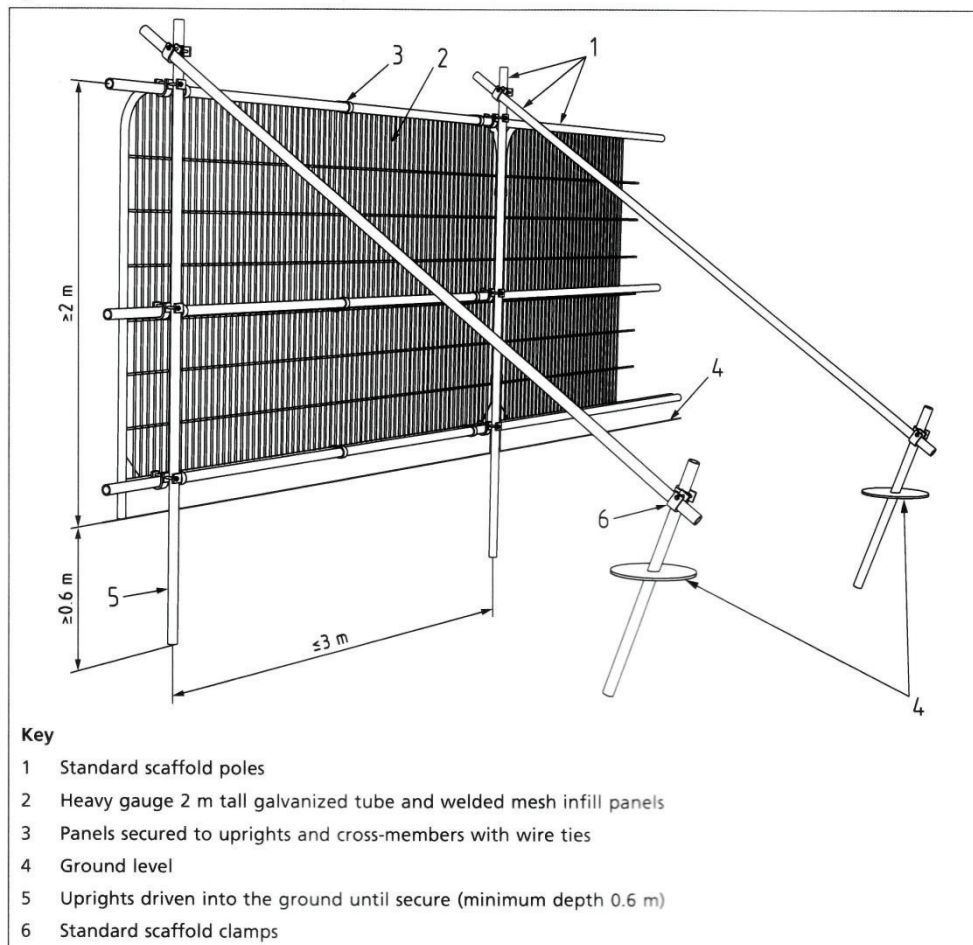
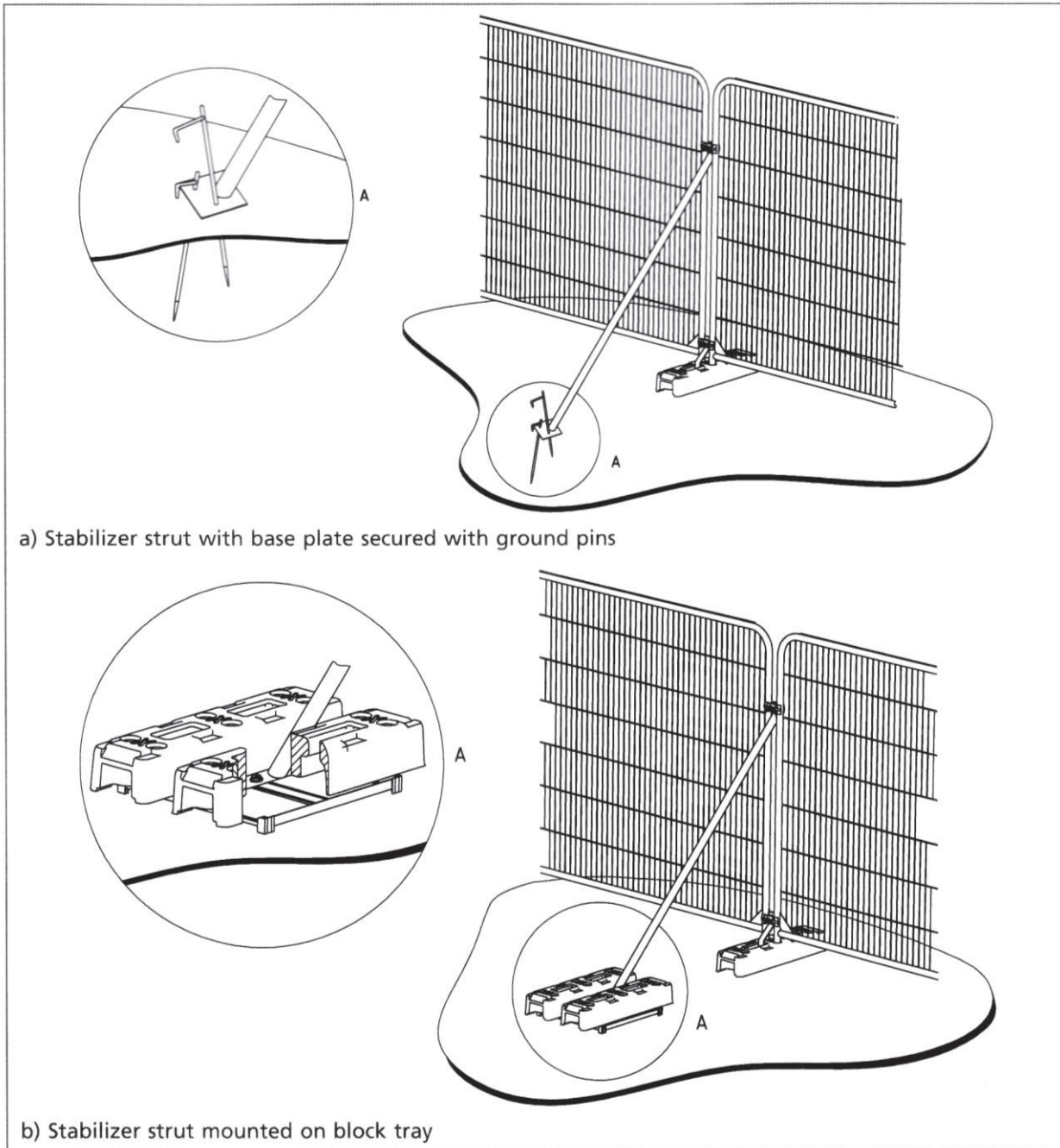


Figure 3 Examples of above-ground stabilizing systems



## Appendix II

### NJUG (National Joint Utilities Group)

#### 'Guidelines for the Planning, Installation, and Maintenance of Utility Services in Proximity to Trees'.

NJUG guidelines are applicable to all underground and overhead services and to trees in various locations. The guidelines should be considered when; a) services are to be maintained or managed and trees are to be managed, b) when new services are to be constructed adjacent to existing trees, and c) where new trees are to be planted adjacent to existing services.

Generally, the majority of the trees rooting system is in the first 600mm of the soil, and tends to extend in a radial direction with distances in excess of the trees height. Excavations within root protection area's of trees are likely to damage roots. Therefore, whenever trees are present, it is important to minimise damage to the trees' rooting system. Excavation of open trenches by machine is totally unacceptable within root protection areas.

As the extent of the trees rooting system is often unpredictable, careful control and supervision of any excavation, particular if it involves digging through the surface 600mm where the majority of roots develop.

Where possible, services should be diverted outside of root protection areas. However, where this is not possible, there are various techniques, which may be used to minimise damage to tree roots. The method for laying depends on the following:

- The scope of the works (i.e. are the works a one-off repair, or do they form part of an extensive operation?).
- Degree of urgency (for restoration of supplies)
- Knowledge of location of other services
- Soil conditions
- Amenity value of tree
- Cost

#### **Acceptable techniques for the laying of services in order of preference are:**

**Trenchless** - Wherever possible trenchless techniques should be used. Pit excavations for starting and receiving the machinery should be located outside the root protection area.

In order to avoid damage, the recommended depth of the run should be below 600mm. External lubrication of the mole with materials other than water should be avoided, unless precautions are taken to ensure no contamination of soil within 600mm of the surface within the root protection area.

**Broken trench** – Combines hand dug trench sections with trenchless techniques. If excavations are unavoidable it should be limited to practical access and installation around / below the roots. The trench must be excavated by hand. Open sections should only be long enough to allow access for linking to the next section. Lengths of sections will be determined by local conditions such as soil texture, cohesiveness as well as the practical need for access. In all cases open sections should be kept as short as possible.

**Continuous trench** – must be undertaken by hand as to retain as many roots as possible. Needs to be undertaken with great care, and therefore is likely to require close supervision, and undertaken by fully competent operatives.

After careful removal of the hard surface material, digging should be undertaken with hand tools. Clumps of smaller roots, including fibrous roots and roots greater than 25mm diameter, should be retained. Roots with a diameter greater than 25mm should not be cut without prior advice from a qualified arborist. If severance is unavoidable, roots must be cut back using a sharp tool, leaving the smallest wound.

## Appendix III

### Terminology

It should be noted that trees are dynamic organisms and as such are subject to change. The details recorded in this report only apply to those visibly apparent on the day of inspection.

No diagnostic tools were used in the assessment; the trees were only assessed visually from ground level. A DBH tape was used to measure the diameter at breast height of the trees. The height and crown spread was estimated.

It should be noted that the trees may be the subject of a Tree Preservation Order or may lie within a Conservation Area. Therefore, the Local Planning Authority must be contacted before any works are carried out upon the trees.

#### 1.0 Tree number:

Each of the trees surveyed was allocated a unique 'T' number, these 'T' numbers are specific to this report only.

#### 1.1 Tree species:

Full botanical name (genus and species) and common name has been given.

#### 1.2 Age class:

Tree age was estimated using the surveyor's professional experience and placed in one of the following categories:

- a) Over mature - crown starting to break up and decrease in size.
- b) Mature - more or less at full height but still increasing in girth rapidly. This category may be extended into the late maturity class, whereby the tree is more or less at full height and large girth but increasing only slowly.
- c) Semi-mature - between 1/3 and 2/3 of the expected height.
- d) Young - established tree up to 1/3 expected ultimate height.

#### 1.3 Height:

Individual tree height was estimated.

#### 1.4 Crown spread:

The crown spread of the tree was measured in metres from the centre of the tree in north, south, east and westerly directions.

1.5 D.B.H:

The diameter at breast height was measured at the standard 1.5 meters above soil level.

1.6 Condition:

A general arboricultural account of the tree's health and form were noted based on site observations. The trees were then placed in one of the following categories:

- a) Good – full healthy canopy but possibly including some suppressed branches or minor physical damage.
- b) Reasonable – slightly reduced leaf cover, minor deadwood or isolated areas of more extensive deadwood.
- c) Poor – overall sparse leafing or extensive dead wood.
- d) In decline – large areas of the crown dead.

Note – The assessment of overall condition also considers other factors including the appearance of the trunk and branches – splits and/ or breaks; potentially weak structural features such as forks, crossing branches, cavities, decay and physical damage to stem or branches.

## Appendix IV

### British Standard Tree Categorisation 2012

Category A **Light Green**: (RGB code 000-255-000)

Trees of high quality with an estimated remaining life expectancy of at least 40 years

1. Trees that are good example of their species, especially if rare or unusual; or those that are essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and / or principle trees within an avenue).
2. Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape
3. Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

Category B **Mid Blue**: (RGB code 000-000-255)

Those of moderate quality with an estimated remaining life expectancy of at least 20 years

1. Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking special quality necessary to merit the category A designation
2. Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little contribution to the wider locality.
3. Trees with material conservation or other cultural value.

Category C **Grey**: (RGB code 091-091-091)

Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter of below 150mm

1. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
2. Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offer low or only temporary /transient landscape benefits
3. Trees with no material conservation or other cultural value.

Category U **Dark Red: Trees for removal** (RGB code 127-000-000)

Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

1. Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees. (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)
2. Trees that are dead or are showing signs of significant immediate and irreversible overall decline.
3. Trees infected with pathogens of significance to the health and / or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better value.



## Appendix V

### Tree detail:

Where applicable, the surveyor may record specific problems/defects associated with a particular tree. This may include consideration of the root plate and the trunk/soil interface, cracking, mounding, presence of fungi as well as an examination of previous management practices such as pollarding, crown reduction/thinning, etc. In the majority of instances, the intensity/severity of the problem/defect will also be recorded individually.

Estimated remaining contribution in years:

- a) < 10
- b) 10+
- c) 20+
- d) 40+

### 1.10 Recommendations:

All recommendations are based on the author's previous experience and knowledge.

All recommendations are valid for a period of one year, from the date of inspection.

The following terms may be used:

- (a) Crown clean – the removal of dead, dying, diseased and crossing branches.
- (b) Crown raise/lift – the removal of the lower branches to allow the unhindered passage of pedestrians/vehicles.
- (c) Crown thin – the removal of branches within the crown to permit the free flow of air, allow greater light penetration or to reduce crown/ branch weight.
- (d) Removal – the controlled dismantling or felling of a tree, usually to just above ground level.

The removal of stumps (usually by stump grinder) to below ground level removes trip hazards and can significantly reduce potential sources of infection.

## Appendix 6

### Glossary of Terms Strouts *et al* (2000) & Lonsdale (1999)

Arboriculture	formally, the culture of trees.
Assessment	in relation to tree hazards, the process of estimating the risk which a tree or a group of trees pose to persons or property.
Aerial	above ground.
Bark	a term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm.
Blight	a loose term describing the extensive and rapid death and collapse of soft tissue.
Bole (trunk)	the main stem of a tree below its first major branch.
Bracket fungus	a fungus whose fruiting bodies resemble brackets shelves or hoofs.
Branch	a limb extending from the main stem or parent branch of a tree.
Branch bark ridge	the raised arch of bark tissue that forms within the acute angle between a branch and its parent stem.
Branch collar	a swelling at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term also applied to the pattern in which the cells of the parent stem grows around the branch base, even if no swelling is thereby formed.
Brown-rot	a type of wood decaying in which cellulose is degraded, while lignin is only modified.
Butt	the basal end of the trunk.
Callus	a term with more than one botanical meaning, especially an undifferentiated mass of cells, for example forming on the upper sides of the junctions
Canker	a clearly defined patch of dead and sunken or malformed bark.
Canker-rot	a disease in which the causal fungus gives rise to both bark canker and underlying wood
Chlorosis	abnormal yellow or yellow-green coloration of normally green foliage.
Co-dominant	“A fork comprising co-dominant leaders is somewhat weaker than a junction between a main stem and a subsidiary branch. In the region where the branch merges with the parent stem, its wood is partially enveloped by the latter due to its smaller annual growth in diameter”. (Lonsdale. 1999).

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	often used to mean 'death'. Here used to mean progressive death of a tree or branch from its extremities towards the roots.
Flush-cut	a pruning cut close to the parent stem which removes part of the branch bark ridge.
Fruit body	a general term for any kind of fungal, spore-bearing structure.
Gall	abnormal plant growth.
Hazard beam	in a tree, an upwardly curved part in which strong internal stresses may occur without the compensatory formation of extra wood.
Host (tree)	the tree on or which the parasite lives.
Included bark	(ingrown bark) bark of adjacent part of the tree (usually in forks acutely angled branches or basal flutes) which is in face-to-face contact so that there is weakness due to the lack of woody union.
Lignin	the hard, cement like constituent of wood cells.
Lion-tailing	a term applied to a branch of a tree that wholly or largely lacks side-branches, except near its tip, and may thus be liable to snap due to end loading.
Natural pruning	the shedding of a twig or branch that has died back naturally and has become decayed at or near its base (often due to the activation of wood-decaying endophytes).
Necrosis	death of plant tissue, usually characterised by a change in colour to brown or black.
Occlusion	the overgrowth of a wound with (callus) tissue produced subsequently (verb occlude).
Remedial action	in tree hazard management, action to remove or mitigate the risk of injury to persons or damage to property.
Stag-headed	describes the silhouette of a large tree whose crown has died back so that the ends of the dead branches protrude like spikes or antlers from the reduced live foliated crown.
Sucker	regenerated growth shoots / water shoots usually from the base and stem of trees. Many species cause galls.