April 2016
CBA10579 v1

Portsmouth City Council

ARBORICULTURAL DEVELOPMENT STATEMENT

Site:
Kingsclere Avenue,
Havant

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The Complete Arboricultural Consultancy

ARBORICULTURAL DEVELOPMENT STATEMENT

Arboricultural Implications Assessment and Method Statement
guided by recommendations within BS5837:2012

Client:	Portsmouth City Council
Site:	Kingsclere Avenue, Havant
Arboricultural Consultant:	Stefan Rose *BSc (Hons), TechCert (Arbor.A), TechArborA*
Date:	April 2016

SUMMARY

The development proposals for land off Kingsclere Avenue, Havant, is to provide mixed residential units, including car parking provision and associated landscaping/private amenity spaces, have been assessed broadly in accordance with BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"*.

This Arboricultural Development Statement (ADS) will demonstrate the protection measures for the trees and should be read in association with the Tree Protection Plan CBA10579.02_TPP that identifies tree removal and retention measures. It follows the initial tree survey and implications assessment.

The emphasis of the report is predominantly that of preservation and tree protection. It identifies methodologies to provide protection for trees, to ensure their healthy and safe retention during and post development, as guided by BS5837:2012 and current best practice.

All of the 21 (twenty one) individual trees, 3 (three) groups of trees and the 2 (two) hedges can be retained.

CBA Trees believes that the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

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SUPPORTING INFORMATION/APPENDICES:

CB1	Tree Survey Schedule including Root Protection Area Schedule
CB2	Tree Survey Plan CBA10579.01 TSP
CB3	Tree Protection Plan CBA10579.02_TPP
CB4	Tree Works Schedule

GUIDING PRINCIPLES/APPENDICES:

CB5	Tree Protection Guidance Leaflet
	Construction Exclusion Zone Site Notice
	Common Causes of Damage During Construction Works
CB6	Qualifications and Experience

1.0 INTRODUCTION

1.1 The development proposals for land off Kingsclere Avenue, Havant, is to provide mixed residential units, including car parking provision and associated landscaping/private amenity spaces, have been assessed broadly in accordance with BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"*.

1.2 Document disclosure provided:

- PP1308.101-01SK1 Site Layout provided by Pope Priestley Architects

1.3 The client and project consultants provided the original site plans and locations of the trees, and these have been the basis for the production of subsequent plans. Whilst CBA Trees has had a limited input in defining the contents of the development plan, it broadly conforms to the requirements of BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"* and current best practice advice.

1.4 Our advice has been sought on the principles of the development in relation to the potential impact on the existing tree stock, to inform and to facilitate the development layout.

2.0 CLIENT'S BRIEF

2.1 In line with our written quotation and verbal instructions, information has been compiled in accordance with BS5837:2012 and current best practice advice.

- To undertake a Tree Survey (schedule including Root Protection Areas appended at CB1).
- To produce an AutoCAD compliant Tree Survey Plan that relies on the accuracy of the topographical survey provided by the client. (Plan CBA10579.01 TSP appended at CB2).
- To undertake an Arboricultural Implications Assessment (AIA) of the proposed development provided by the client to identify which trees will be lost, which can be retained and suggest mitigating build techniques in order to retain trees.
- Based on the above and further on-going discussions, to provide an Arboricultural Development Statement detailing the methodologies for the retention of the tree stock where feasible, in relation to the approved development layout including a Tree Protection Plan CBA10579.02_TPP appended at CB3.

2.2 The advice provided has been formulated without discussion with the main ground or construction contractors who at this stage have not been appointed. Once the main contractors are appointed, amendments to this statement may be required for construction purposes. All amendments will be assessed by the retained arboricultural consultant and approved in writing by Havant Borough Council.

3.0 DESCRIPTION OF THE SITE

3.1 The site is currently an area of open space surrounded by housing on the north, east and west sides and a school to the south. The site is grassed with various trees and groups growing on and offsite around the boundaries.

3.2 The dominant trees are located offsite within the school grounds to the south.

4.0 THE TREE STOCK

4.1 CBA Trees undertook a tree survey on 24th March 2016 that identified 21 (twenty one) individual trees and 3 (three) groups of trees and 2 (two) hedges. The Tree Survey Schedule is appended at CB1 and Tree Survey Plan CBA10579.01 TSP is appended at CB2.

4.2 ***Tree Categorisation Method***

Category U = Trees in such a condition that any value would be lost within 10 years, or should be removed for reasons of sound arboricultural management. There was 1 off site individual 'U' grade tree adjacent to the site at the time of surveying (Tree 3).

Note: BS5837:2012 states -
"Category U trees are 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."

Category A = Trees of high quality and value: in such a condition as to make a substantial contribution, (40 years or more is recommended). There was 1 (one) individual 'A' grade tree adjacent to the site at the time of surveying (Tree 19).

Category B = Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years. There were 3 (three) individual 'B' grade trees, 1 (one) group of 'B' grade trees and 1 (one) hedge on or adjacent to the site at the time of surveying (Trees 15, 16, 20 plus Group 2 and Hedge 2).

Category C = Trees of low quality and value which might remain for a minimum of 10 years or young trees with stems of less than 150mm diameter. There were 16 (sixteen) individual 'C' grade trees, 2 (two) groups of 'C' grade trees and 1 (one) hedge in total on or adjacent to the site at the time of surveying (Trees 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 21 plus Group 1, 3 and Hedge 1).

Note:
Trees under these categories are trees that should be a material consideration in the development process; the subcategories are intended to reflect arboricultural, landscape and cultural values respectively.

4.3 For more details of the existing tree stock, refer to the Tree Survey Schedule (appended at CB1).

5.0 TREE PRESERVATION ORDER/CONSERVATION AREA

5.1 CBA Trees was not instructed to investigate whether trees on or adjacent to the site are protected by a Tree Preservation Order or located within a Conservation Area. The client is advised to obtain written confirmation from Havant Borough Council to establish the legal status of these trees prior to any works being undertaken, outside the remit of an approved planning application.

5.2 If it is intended to carry out works to trees on site prior to the granting of Full Planning Consent and Discharge of Planning Conditions, it will be necessary to gain written consent from Havant Borough Council to carry out tree works to those trees that are protected by the Orders.

6.0 PROPOSED TREE RETENTION AND TREE LOSS

6.1 In accordance with the recommendations contained within BS5837:2012, an experienced arboriculturist has assessed the requirements for tree protection and the Root Protection Area (RPA). The implications of the proposed development are detailed below, along with any mitigating measures to ensure the retention of these trees.

6.2 As part of the assessment, dimensions have been scaled from the proposed drawing PP1308.101-01SK1 Site Layout provided by Pope Priestley Architects prepared and modified, to include the relevant Tree Survey data appended at CB3.

7.0 SUMMARY OF ARBORICULTURAL IMPLICATIONS

7.1 The following is a summary of arboricultural implications as indicated on Tree Protection CBA10579.02_TPP.

Table 1: Arboricultural Implications

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
1*	Common Laburnum *Laburnum anagyroides*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
2*	Pedunculate Oak *Quercus robur*	C1+2	• Damage to roots • Damage to crown • Construction of the access paths • Fence erection • Shed base • General site activities and movements	• Retained	• To be protected as per Section 2 of this report • No dig/minimal dig foundation design for access paths, shed base

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
3*	Silver Birch *Betula pendula*	U	• Damage to roots • Damage to crown • Construction of the access paths • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
4*	Aspen *Populus tremula*	C1+2	• Damage to roots • Damage to crown • Construction of the access paths • Fence erection • Shed base • General site activities and movements	• Retained	• To be protected as per Section 2 of this report • No dig/minimal dig foundation design for access paths, shed base
5*	Common Hazel *Corylus avellana*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
6*	Common Ash *Fraxinus excelsior*	C1+2	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
7	Common Ash *Fraxinus excelsior*	C1	• Damage to roots • Damage to crown General site activities and movements	• Retained	• To be protected as per Section 2 of this report
8	Common Ash *Fraxinus excelsior*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
9*	Sycamore *Acer pseudoplatanus*	C1+2	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
10	Common Ash *Fraxinus excelsior*	C1+2	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
11	Common Ash *Fraxinus excelsior*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
12	Common Ash *Fraxinus excelsior*	C1	• Damage to roots • Damage to crown • Construction of the access paths • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report • No dig/minimal dig foundation design for access paths • Ground protection required
13*	Pedunculate Oak *Quercus robur*	C1+2	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
14	Pedunculate Oak *Quercus robur*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
15*	Pedunculate Oak *Quercus robur*	B1+2	• Damage to roots • Damage to crown • Construction of access paths and car parking • General site activities and movements	• Retained	• To be protected as per Section 2 of this report

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
16*	Pedunculate Oak *Quercus robur*	B1+2	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
17	Pedunculate Oak *Quercus robur*	C1	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
18	Common Ash *Fraxinus excelsior*	C1+2	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
19*	Pedunculate Oak *Quercus robur*	A1+2	• Damage to roots • Damage to crown • Fence erection • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
20	Common Walnut *Juglans regia*	B1+2	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
21*	Lawson Cypress *Chamaecyparis lawsoniana*	C1	• Damage to roots • Damage to crown • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
Grp 1	Privet	C2	• Damage to roots • Damage to crown • Construction of the access paths • General site activities and movements	• Retained	• To be protected as per Section 2 of this report No dig/minimal dig foundation design for access paths
Grp 2	Common Ash Field Maple Pedunculate Oak Silver Birch Goat Willow	B2	• Damage to roots • Damage to crown • Construction of the access paths • Fence erection • Shed base • General site activities and movements	• Retained	• To be protected as per Section 2 of this report • No dig/minimal dig foundation design for access paths, shed base
Grp 3	Leyland Cypress Silver Birch Common Ash Goat Willow	C2+1	• Damage to roots • Damage to crown • Construction of the access paths • General site activities and movements	• Retained	• To be protected as per Section 2 of this report • No dig/minimal dig foundation design for access paths
H1	Lawson Cypress Privet	C2	• Damage to roots • Damage to crown • Construction of the access paths • General site activities and movements	• Retained	• To be protected as per Section 2 of this report
H2	Privet	B2	• Damage to roots • Damage to crown • Construction of the sub station • General site activities and movements	• Retained	• To be protected as per Section 2 of this report

7.2 The following will need to be removed to facilitate the proposed development:

- No trees will be removed as part of this development.

8.0 PRE-COMMENCEMENT SITE MEETING

8.1 It is recommended that a pre-commencement site meeting should be held prior to any works commencing on site, to agree all approved processes with the arboricultural consultant, the construction personnel and Havant Borough Council Tree Officer. This meeting could be used to formally agree the methods of work, position of site offices, material storage, compounds, parking and tree protection measures prior to commencement of the development and the associated clearance work.

9.0 ADDITIONAL ARBORICULTURAL ADVICE FOR SITE PERSONNEL

9.1 To provide site personnel with additional information regarding the requirements of Tree Protection, a leaflet (appended at CB5) shall be issued to all staff at the time of their site induction. Spare copies of this leaflet shall be available in the site office as replacements.

9.2 In order to inform site personnel of the purpose of the barriers, information notices shall be fixed to the barriers at 5m intervals. These notices shall be of all-weather construction and shall be substantially in the form of the specimen provided at appendix CB5 and replaced as and when necessary.

10.0 PRE-DEVELOPMENT TREE WORKS

10.1 All tree works will be undertaken prior to the commencement of site preparation and construction works.

10.2 **All permitted or approved tree work** should be carried out in accordance with the British Standard *"Recommendations for Tree Work"* BS3998:2010, by suitably qualified and experienced professional arborists. Under no circumstances shall site personnel undertake any tree pruning operations. All tree surgery works should be carried out prior to the development of the site, and erection of protective barriers.

10.3 If any works are required to retained trees that are protected by the Tree Preservation Orders prior to full planning permission being granted, a written application must be made prior to the works being programmed/commenced and are subject to the Council considering the works and consenting to the tree works in writing before the works are carried out.

10.4 Consideration should be given to the timing of any tree works to avoid the active growing period of trees. Therefore, all tree work should ideally be carried out during the dormant period from November through to February and then again from June to August.

10.5 Due to the bird-nesting season, considered to be from 1st March through to the 31st July (Natural England) depending on weather conditions, consideration must also be given to the potential for nesting birds. Therefore, where tree work is to be carried out within June, July or August the project ecologist must be consulted to:

- Complete or advise on a pre-works survey that needs to be carried out by a suitably competent person. As a general rule, it should be assumed that birds will be nesting in trees, and it is down to contactors to assess, record and confirm that any works carried out in the management of trees and other vegetation has not disturbed actively nesting birds.*

- Ground vegetation, and therefore ground nesting birds, can often be overlooked by tree workers so additional care and controls should be taken when access and egress to the work site may also cause disturbance or damage to a nesting site. This is also true for retained trees on site as the removal of adjacent trees or remedial works on a tree may lead to an established nest being abandoned, exposed to the elements or predation. This action is also a breach of the Act and therefore could lead to prosecution due to the infringement of the Wildlife and Countryside Act 1981 and breaching the Conservation of Habitats and Species Regulations 2010 (as amended).

10.6 Although not apparent at the time of the site visit, consideration should also be given to the presence of bats, and a full visual assessment should be undertaken before any works are carried out on the trees. Where bats are identified as a serious concern, a bat survey should be undertaken by qualified and trained personnel to identify the needs of the bats (roosts, resting place etc) and no tree works can be carried out until the 'all clear' is given, or a programme of recommendations is received in writing.

10.7 Should additional tree works become apparent during the construction process; written consent will be required from Havant Borough Council prior to these additional works being undertaken.

10.8 All tree works that are required to facilitate the development are detailed within the Tree Works Schedule appended at CB4.

11.0 TREE PROTECTION MEASURES

11.1 All site operations will be planned, implemented and supervised to prevent the following unless otherwise agreed within this report:

- Root severance
- Damage to the bark, branches and trunks
- Compaction of the soil within the Construction Exclusion Zone
- Alterations in soil level
- Soil contamination by phytotoxic materials such as herbicides, petrol, oils, diesel, cement and concrete washings or other construction additives

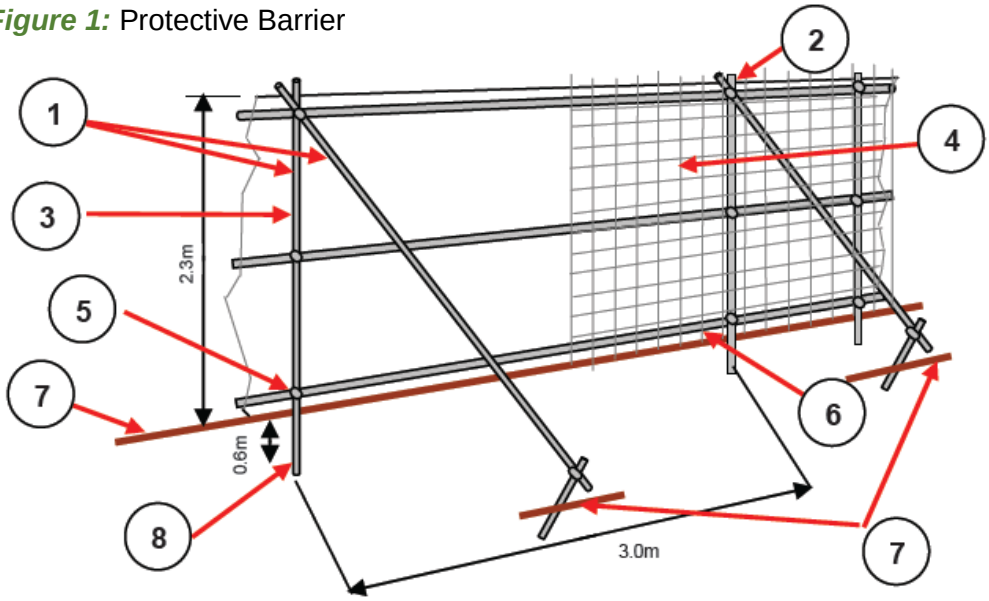
11.2 Before starting any site works in relation to this development proposal, tree protection will be installed in accordance with Tree Protection Plan CBA10579.02_TPP (appended at CB3). This will occur immediately following the completion of tree works and prior to any site preparation works starting.

A copy of the Tree Protection Plan will be displayed in the site office and canteen as a point of reference for all site operatives.

11.3 ***Standard Protective Barrier***

Installing the following protective barrier as indicated on Tree Protection CBA10579.02_TPP will protect retained trees. The barrier is to comprise of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weldmesh panels should be securely fixed with wire or scaffold clamps.

Figure 1: Protective Barrier



1. Standard scaffold poles
2. Uprights to be driven into the ground
3. Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4. Weldmesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on inside face of barriers to avoid easy dismantling
7. Ground level
8. Approximately 0.6m driven into the ground

Example of protective barrier:

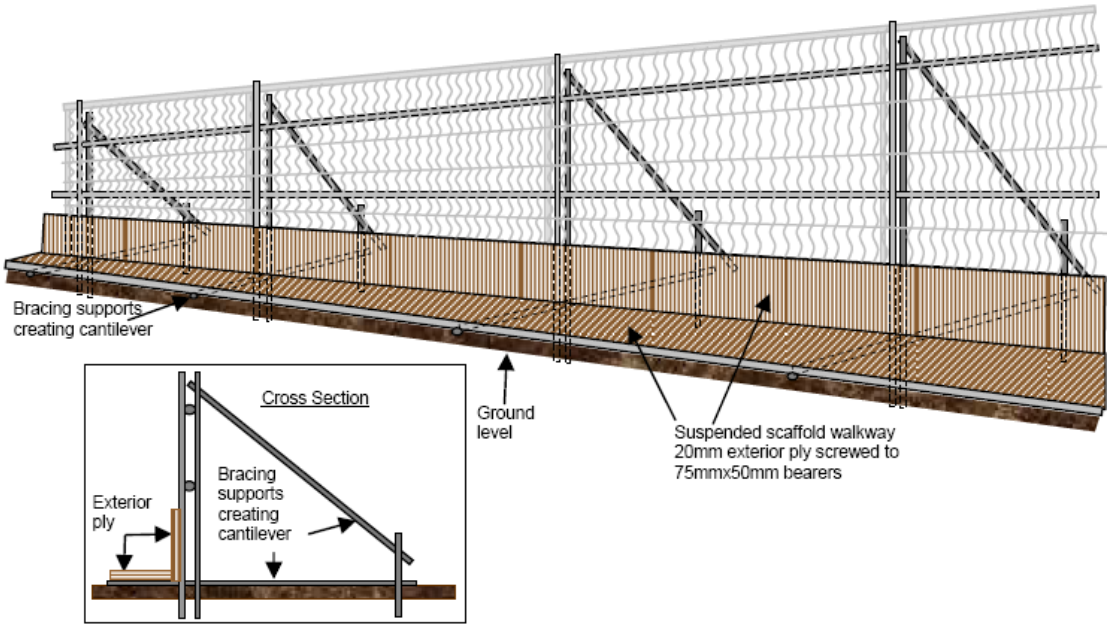
11.4 *Ground Protection*

Pedestrian movements

Tree 12 requires construction activity within the identified Construction Exclusion Zone (CEZ). Ground protection will be implemented for this tree as per the Tree Protection Plan CBA10579.02_TPP.

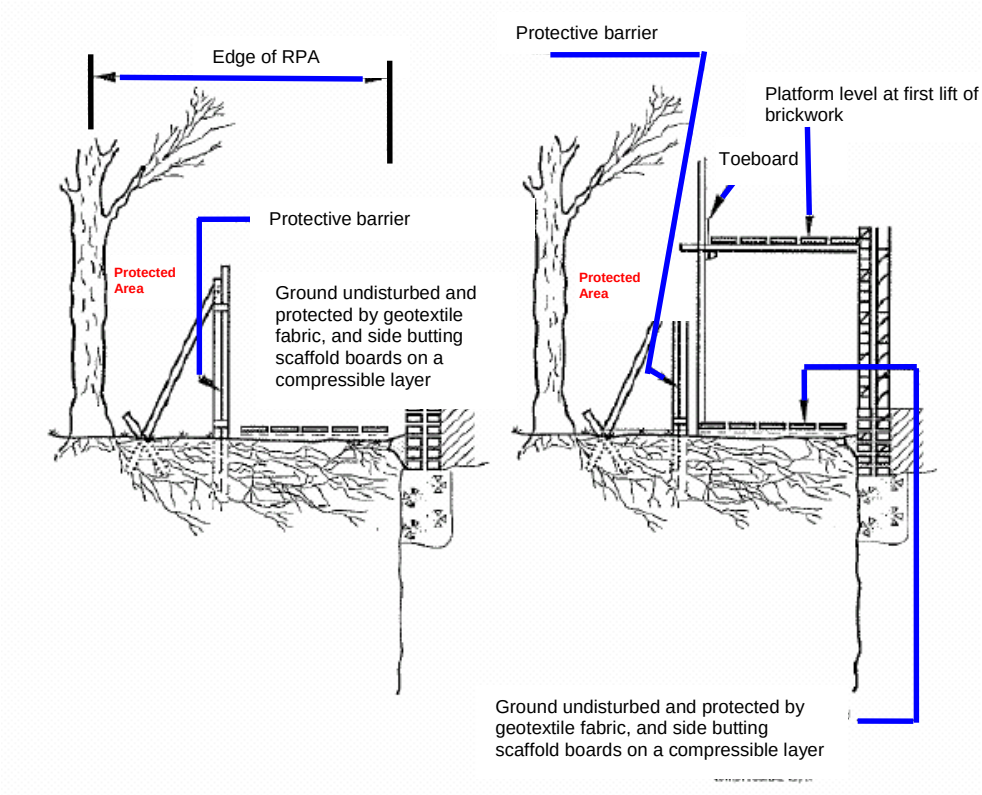
Ground protection will be constructed in accordance with Figure 2 below, and consist of a suspended walkway decked with 20mm exterior grade Plyboard supported on 75 x 50mm bearers. The specification provides for pedestrian access only.

Figure 2: Pedestrian walkway within the Root Protection Area



An alternative approach is provided (Figure 3 below), the method will allow for construction and working space within the CEZ of Tree 12. This method will consist of a single thickness of butt jointed scaffold boards supported on a 150mm thick layer of composted woodchip that is prevented from mixing with the underlying soil by geotextile separation layer.

Figure 3: Ground Protection Specification



11.5 Once the barriers and ground protection are in place it must remain *in-situ* throughout the following list:

- Contractor occupancy
- Plant and materials delivery
- Construction works
- Installation of porous surfacing
- Utility installation
- Completion of development
- Landscaping

11.6 The areas protected by barriers, fencing and ground protection will be regarded as **sacrosanct**, and the tree protective barriers shall not be taken down or relocated at any time without the written approval of Havant Borough Council. An example of a CEZ notice is appended at CB5.

12.0 FOUNDATIONS DESIGN AND CONSTRUCTION

12.1 Building foundations are proposed within the calculated RPA of Tree 12.

12.2 It has been recognised that traditional trench fill foundations can be used as the intrusion into the rooting area will not have a detrimental effect on the long term health of the tree.

12.3 Full construction details of the proposed foundation designs for the access paths across the site, are not yet available but will be engineer designed, assessed by the retained arboricultural consultant and submitted for approval in writing to Havant Borough Council prior to the commencement of works on site. The design must be of no dig principle so that the foundation design will:

- Minimise direct damage and severance of roots within the RPA of retained trees
- Maintain soil structure
- Prevent compaction of rooting environment during construction as it is installed by use of hand held tools
- Minimise ground level increases within the RPA
- Maintain soil moisture beneath the structure
- Maintain aeration beneath the structure
- Allows for future root growth
- Be sufficient to withstand soil volumetric change as a result of future growth or loss of adjacent trees.

13.0 EXISTING SERVICES

13.1 No information has been provided on the location and size of existing services. However, if there are any existing services within the RPA and CEZ of retained trees will not be chased out, but cut at the edge of any structure and left *in- situ.*

13.2 Cabling will only be recovered from beneath a CEZ where it is located in ducting, and can be removed by winching from an existing service manhole beyond the CEZ.

13.3 Service pipes and ducts, where they are located within the CEZ or RPA of retained trees, will be made redundant either by pipe bursting or by filling with an inert material such a foamed concrete.

14.0 AVOIDING DAMAGE TO STEMS AND BRANCHES

14.1 Care shall be taken when planning site operations, to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact could result in serious damage to them, and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees, will be conducted under the supervision of a banksman, in order to ensure adequate clearance from trees is maintained at all times.

15.0 VEHICULAR MOVEMENTS

15.1 There should be minimal vehicular movement in the potential rooting zone and outside the CEZ identified on CBA10579.02_TPP.

15.2 It is not anticipated that there will be a need for excess vehicular movement near the retained trees during the construction phase given that there will be an open area within the site that is suitable for the purpose of car parking etc.

16.0 SITING OF TEMPORARY OFFICES, TOILETS AND MATERIAL STORAGE COMPOUNDS

16.1 It is anticipated that all storage materials and deliveries shall make use of the open space outside of the RPAs of retained trees and the areas protected by ground protection within the site confines, in order to avoid unnecessary damage to tree roots.

16.2 The locations shall be agreed in writing with Havant Borough Council prior to the commencement of works on site, and will remain in only those agreed locations throughout the construction phases. If an alternative location is required, this must be agreed in writing with Havant Borough Council. This will also include the delivery; storage and movement of all essential facilities, as well as aspects such as temporary contractor vehicle parking and site location of chemical mixing (e.g. concrete). All such locations will be outside of the RPAs, and avoid areas where 'run off' of chemicals may flow into RPAs.

16.3 ***Site Huts***

All site huts that are to be situated on ground that is not existing hard surfacing, shall have appropriate footings or be situated on a temporary surface, which will aid in reducing the potential for compaction of the ground, where they are in close proximity to the existing tree protective barrier line. Site huts can be used as part of the protective barrier boundary, and in some cases, can be beneficial where installation does not conflict with the aerial parts of the tree.

If it is proposed that site huts, ground protection or stores are to be located within the RPA of retained trees for more than 3 months, a temporary irrigation and aeration system will be installed to ensure that the rooting environment is maintained in a good condition. The system will include a compressible layer of composted wood chip or forest bark over a geotextile separation layer, on which ground protection or site huts can be placed. Watering will depend on permeability of the soil, weather conditions, and the extent of the area covered, but should include weekly watering from April to September, when no rainfall has occurred for more than four consecutive days.

16.4 ***Material Storage***

This shall be accommodated outside of the CEZ, particularly to avoid harmful spillages of fuel, or phytotoxic substances that may damage the health of retained trees.

17.0 GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE CONSTRUCTION EXCLUSION ZONE

17.1 Inside the CEZ formed by the protective barrier measures, the following prohibitions shall apply:

- No construction activity will occur within the CEZ unless otherwise stated in this report, or agreed in writing with Havant Borough Council prior to the specific activity taking place.

17.2 In addition to the above, further precautions are necessary adjacent to trees outside the CEZ:

- Materials, which will contaminate the soil e.g. concrete mixing, diesel oil and vehicle washings, shall not be discharged within 10 metres of the tree stem. This should take into consideration the topography of the site and slopes, to avoid materials such as concrete washings running towards trees.

- Fires shall not be lit in a position where their flames can extend to within 5 metres of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.

- Notice boards, telephone cables or other services shall not be attached to any part of the tree. (See appendix CB5 Common Causes of Damage During Construction Works)

18.0 UTILITY SERVICE CONNECTIONS

18.1 Details of service location proposals have not been forwarded to CBA Trees at the time of compiling this assessment. It is however assumed, given the location of the trees to be retained, that services will be installed outside the root protection areas of retained trees, and connected to the existing where practicable, this will avoid disturbance of tree roots and ensure their healthy retention.

18.2 Where such techniques are not practical or cost affective services will be installed in accordance with the following specification:

All required excavation for service installation within the CEZ of must be carried out by hand using non-metallic tools. Preferably, a compressed air lance (Soil Pick) will be used to loosen soil around existing roots. Any large roots greater than 25mm diameter or clusters of smaller roots will be retained and protected using damp Hessian before proceeding with further excavation.

Photograph 1:
Compressed Air Lance
removing soil from around roots

Photograph 2:
Exposed undamaged roots following excavation with soil pick

Great care should be taken to preserve and work around roots greater than 25mm in diameter, and clusters of smaller roots avoiding breakage, splitting or damage to the exposed bark. Within the area of excavation, split sections of appropriately sized plastic pipe will be tied around Hessian wrapped roots to prevent impact damage to bark occurring.

Photograph 3:
Exposed roots protected from damage with wet Hessian and split plastic pipe

Photograph 4:
Trench sides protected from drying by wet Hessian

If it is absolutely necessary to sever roots greater than 25mm in diameter, arboricultural advice must be sought. Where smaller roots must be severed, they should be cut back cleanly using secateurs or a sharp pruning saw.

No trenches containing exposed tree roots must be left open overnight. If the trench is to remain open for any period of time during the day, and/or the weather is hot, Hessian wrappings will be kept moist to prevent the roots from drying out and trench sides will be draped with damp Hessian to reduce the potential for root tip death through lack of moisture.

Backfilling of initial trenches should be carried out using the excavated soil, which should be worked in around roots and lightly “tamped” to remove air pockets whilst respecting the original soil profile. Compaction of the material by the use of pneumatic tools or a trench hammer will not be permitted. The backfill should be left proud of surrounding levels to allow for settlement.

Further advice on the installation of services is set out in NJUG Publication Volume 4 2007, and Section 7.7 of BS5837:2012.

19.0 GROUND LEVEL ALTERATIONS

19.1 There will be no increases to the ground level on site within the root protection areas of the retained trees.

20.0 INSTALLATION OF BOUNDARY TREATMENT

20.1 The proposed layout indicates that boundary treatments are proposed within the CEZ of retained Trees. Tree roots can extend well in excess of the RPA of retained trees and are mainly located in the upper 600mm of soil. As such, even minor levelling and excavation can result in extensive damage to the root system. Inappropriate access within the CEZ for fence construction purposes can result in soil compaction and deterioration of the soil structure. Concrete used to support the posts is poisonous to plants and, if not controlled, can leach into the surrounding soil.

20.2 Fencing and walls will be designed and constructed in accordance with the following specification:

- They will be designed to minimise the need for excavation and allow minor variations of up to 300mm between post or foundation spacings to allow repositioning of posts to permit the retention of all roots that are greater than 25mm that are discovered during the excavation of postholes within the RPA of retained trees.

- Boundary treatments will be installed during period of dry weather to maintain soil structure and prevent compaction of the rooting environment.

- Fit for purpose ground protection will be placed along the line of construction to prevent compaction of the rooting environment of retained trees.

- Where tree crowns overhang the boundary treatment, any low hanging branches will be cut to allow the crown to be lifted to no higher than 3.0m over the boundary treatment by an arboriculturist to prevent damage to low branches.

- Postholes within the RPA will be carefully excavated by hand to locate roots greater than 25mm in diameter. Postholes will be relocated to ensure that all roots over 25mm diameter are retained.

- Postholes within the RPA of retained trees will not be routinely lined with heavy gauge polythene to aid in the curing of the concrete against the soil, however where roots are exposed within the post holes, heavy gauge polythene will be used against the exposed roots to reduce contamination of the rooting environment adjacent to the roots.

- Bracing of posts off retained trees will not be permitted under any circumstances

- Where walls are proposed within the construction exclusion zone, the wall foundation will be designed to minimise the excavation via the use of pile and lentil foundations.

21.0 SOFT LANDSCAPING WORKS

21.1 Any soft landscaping works within the development area will be in accordance with the approved landscape plan, and any specification of such works approved by Havant Borough Council.

21.2 CBA Trees has not been provided with the final landscaping proposals, however all landscaping will accord with following requirements:

- Where landscaping works are to be carried out within the CEZ of retained trees after the main phase of construction has been completed. At this stage, it will be necessary to alter the line of/remove protective barriers in order to facilitate the landscaping works.

- The CEZ will remain off limits for all site plant and machinery unless fit for purpose ground protection is installed. Pedestrian traffic must be kept to an absolute minimum only permitted for the ground preparation and landscape installation works.

- The landscaping works will need to be undertaken in such a way as to avoid level changes, deep digging or mechanical rotovating. Excavation of planting pits with the RPA can cause serious harm the root system of retained trees. Planting pits within the RPA of retained trees will be excavated by hand to avoid roots greater than 25mm and masses of smaller roots.

- If any planting pits are required within the CEZ of retained trees, these will be dug by hand and with care avoiding roots greater than 25mm diameter or masses of smaller roots.

Figure 4:
Root severance as a result of planting within RPA

Planting Trees and Shrubs. Watson G. W. and Himelick E. B. 1997

21.3 Installation of turf within the CEZ will require that:

- In all cases, existing vegetation will be removed to ground level by hand following treatment with a suitable systemic herbicide that is not toxic to existing retained trees. This prevents the build-up of methane formed as part of the composition process.

- Where there are stumps of removed trees or shrubs, these will be ground out to 300mm below ground level and resulting holes filled with sharp horticultural sand to provide a stable base for laying of the new turf.

21.4 Any surface mulch will consists of well-composted material such as bark or wood chips. This is necessary to avoid potential nutrient loss from the soil, such as Nitrogen, as the mulch breaks down, as nutrient loss can be detrimental to the health and longevity of retained trees.

21.5 All work specified in the approved landscaping scheme shall be carried out before the end of the first planting and seeding season, following the occupation of any completed part of the development.

21.6 Any existing trees shown to be retained, or trees and shrubs to be planted as part of the landscaping scheme that are removed, die, become severely damaged beyond recovery or diseased within 2-5 years of the completion of the development (dependent on planning Conditions), shall be replaced within the next planting season with trees or shrubs of appropriate size and species that complement the existing tree stock. Where the trees in question are protected by planning controls, the local planning authority should be informed and necessary arrangements made prior to such work.

22.0 SITE MONITORING AND SUPERVISION

22.1 It is recommended that on-going arboricultural site monitoring takes place for the duration of the proposed development, to be carried out by a qualified and experienced arboriculturist at pre-determined and agreed time intervals, and governed by the type, timing, location and intensity of site works. It is for Havant Borough Council to Condition site monitoring if required.

22.2 If conditioned, it will take the form of regular inspections (to be agreed, but at least one visit per month during the construction phase of the development is advised, together with additional visits to supervise works with the CEZ of retained trees). The aim of the visits is to maintain on-going liaison with all personnel involved in the site development, Havant Borough Council and its Tree Officer.

22.3 Any defects requiring rectification shall be notified to the Contractor/Site Manager and the client.

22.4 In addition, a site logbook for tree protection measures is kept to record all stages of the development from the erection of the protective barriers, right through to the completion of the project. This will be made available to the arboricultural consultant and Havant Borough Council Tree Officer if required, to show evidence of continuous site monitoring.

Example pro-forma:

Date	Activity	Checked	Comments/ damage noted	By whom	Signed	Action taken
	Pre commencement tree works					
	Erection of protective barriers					
	Establishment of ground protection measures					
	Weekly Check of ground protection measures					
	Weekly inspection of protective barriers					
	Monthly site inspection					
	Supervised installation of no dig/minimal dig footpath foundations					

22.5 The Havant Borough Council Tree Officer (or appropriate representative) will have agreed access to the site, and will report on any problem areas directly to the developer's retained arboriculturist, who will then visit the site and make recommendations to the developer on how best to rectify the situation and ensure the implementation.

23.0 REPORT DAMAGE TO TREES AND TREE PROTECTION BARRIERS

23.1 Should any damage be caused to trees noted for retention, either by the above works or as the result of any other action, the damage should be reported to the site supervisor immediately. The site supervisor shall report up the chain of responsibility to the retained consultant arboriculturist, or in the absence of such an appointment, to an appropriately qualified arboriculturist, to enable remedial measures to be implemented as necessary and as agreed with Havant Borough Council Tree Officer.

23.2 Should damage occur to a protective barrier to impair its function in protecting trees, all work will cease near the damage, until the barrier has been returned to standard.

24.0 REMOVAL OF PROTECTIVE BARRIERS

24.1 When the development phase is complete, all drainage and service runs are in place, all site machinery has been removed and any landscaping for the principal area of the site has been implemented, the protective barriers will be dismantled.

24.2 This barrier dismantling must be undertaken with great care, and will need to be supervised to avoid heavy machinery being used within the Root Protection Areas. Hoarding, scaffolding and other barrier materials will need to be removed from site immediately.

25.0 COMPLETION MEETING

25.1 Upon completion of all the works specified above, and in line with procedures also specified, the retained arboricultural consultant will invite Havant Borough Council Tree Officer to meet on site, to discuss the project and to agree on any remedial works required.

26.0 CONCLUSIONS

26.1 The development proposals for land off Kingsclere Avenue, Havant, to provide mixed residential units, including car parking provision and associated landscaping/private amenity spaces,, have been assessed broadly in accordance with BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"*.

26.2 It is our opinion that the trees identified for retention can be afforded due respect and provided adequate protection, ensuring their safe and healthy retention during the development process and have been fully considered throughout the design of the site development.

26.3 All of the 21 (twenty one) individual trees, 3 (three) groups of trees and the 2 (two) hedges can be retained.

26.4 Provided the recommendations included within this report are strictly adhered to, CBA Trees believes the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

27.0 CONTACT LIST

27.1 It is suggested that points of contact and lines of communication are established prior to commencement of the works on site including:-

- Arboricultural Consultant
- Project Architect
- Highways Engineer
- Structural Engineer
- Drainage Engineer
- Landscape Architects
- Havant Borough Council Tree Officer
- Havant Borough Council Planning Case Officer
- Site Supervisor and Foreman

27.2 It is advised that the site supervisor establishes their own listing of contact details at the pre-start site meeting, and displays this in their office for general use as necessary.

28.0 BIBLIOGRAPHY

- British Standard 5837:2012 –
  "Trees in Relation to Design, Demolition and Construction - Recommendations"
- British Standard 3998:2010 –
  "Recommendations for Tree Work"
- National Joint Utilities Group Publication Volume 4 –
  "Guidelines for the planning, installation and maintenance of utility services in proximity to trees"
- Wildlife and Countryside Act 1981
- Conservation of Habitats and Species Regulations 2010 (as amended)
- Town and Country Planning Acts

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CB1

The Professional Arboricultural Consultancy

TREE SURVEY NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2012 and current arboricultural best practice.

- Each tree has been numbered and, where instructed, for future identification on site, has been tagged using small durable metal or plastic tags.
- Due to variations of existing ground levels through the site, height dimensions are estimated and are given in metres. Accurate heights, measured with the aid of optical instruments can be provided where instructed.
- Trunk/stem diameters are measured in mm at 1.5 metres above ground level, using a standard measuring tape as defined by British Standards, unless otherwise stated.
- Estimated branch spread is taken in metres from the centre of the trunk, at the four cardinal points of a compass, to achieve an accurate representation of the crown shape which will be recorded on the tree survey plan.
- An assessment of a tree's age classification is made in terms of its maturity within the site's landscape and defined as:

  Y = young trees
  SM = semi-mature trees
  EM = early mature trees
  M = mature trees
  OM = over-mature trees

- An assessment of a tree's physiological condition is defined as:

  Good = fully functioning biological system showing average vitality i.e. normal bud growth, leaf size, crown density and wound closure
  Fair = fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure
  Poor = a biological system with limited functionality showing significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure
  Dead = dead

- An assessment of a tree's structural condition is defined as:

  Good = no significant structural defects
  Fair = structural defects which could be alleviated through remedial tree surgery or management practices
  Poor = structural defects which cannot be alleviated through tree surgery or management practices
  Dead = dead

- An assessment of a tree's future life expectancy is defined as: **<10, 10+, 20+ or 40+ years.**

Categorisation of Trees

The category for each tree is assessed using the recommendations of BS5837:2012. The assessment has not considered any site-specific development proposals, but will have considered any changes on or off-site which may have an effect on the conditions surrounding the surveyed trees.

The trees have been classified into one of the following categories (and one or more sub-categories [this will however not increase the value of the tree]) and are indicated on the associated drawings by colours as indicated.

Category U				Identification colour on plan
Trees 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	• 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) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • 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 quality			**DARK RED**
Category A	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands, of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**LIGHT GREEN**
Category B	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are down-graded because of impaired condition (e.g. presence of significant though remediable 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 the special quality necessary to merit the category A designation	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 visual contribution to the wider locality	Trees with material conservation value or other cultural value	**MID BLUE**
Category C	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	**GREY**

Clients are advised that Tree Surveys are a basic data collection exercise and record of tree condition at the time of survey. This will identify any visible signs of ill-health or major defects, advising a further detailed investigation where appropriate. This will most often take the form of a request for either "*full ground level inspection*" or "*climbing inspection required*". There may also be a further reference to the need for "*decay detection equipment*" to aid diagnosis. A tree survey does not include a comprehensive schedule or specification of remedial tree works, but may contain a guide to the work which might be undertaken by a prudent tree owner, purely for reasons of health and safety.

A Tree Survey should not be confused with a Tree Inspection or Arboricultural Implication Assessment, which are totally separate exercises.

CBA Trees	**BS5837:2012 TREE SURVEY REPORT**	
	Site:	Kingsclere Avenue, Havant
	Date:	24th March 2016
	Consultant:	Stefan Rose *BSc (Hons), TechCert (Arbor.A)*
	Tagged:	No

Notes:

1. It may be advised that some trees should have the ivy removed to enable a re-survey to be carried out. This would also alleviate the tree from becoming suppressed; carrying additional weight that increases the chance of windthrow due to a larger dense crown area; and only receiving restricted light. Unless otherwise stated, in order to prevent regrowth, it is only necessary to remove a 300mm section of ivy and clear around the base.
2. It may be advised that it was only possible to estimate the diameter of some trees because of ivy smothering, dense vegetation, or trees located off-site with no access.
3. The estimated remaining contribution in years, and the tree grading category have been calculated for the current situation and may alter where further investigation works are advised.
4. Some trees or groups may have been given an interim grade. The reason for the interim grading is addressed in the timescales given as this may have a bearing on health and safety and/or any development proposals.
5. Tree Groups have been assessed with estimated and representative data.
6. This is not a Tree Works Schedule. Any preliminary management recommendations are listed in the interests of health and safety and should be carried out by a prudent tree owner.
7. Any management recommendations are suggested for reasons of health and safety only, regardless of development proposals at this stage. However, the defects requiring remedial tree surgery are by their very nature potential wildlife habitats, including protected species which needs consideration prior to any tree surgery works commencing.
8. a) At this stage the Root Protection Area (RPA) information is for your guidance and ongoing discussion purposes only as it assumes that all but the 'U' grade trees will be retained, which may not be the case.
   b) For all single stem trees with a stem diameter greater than 1250mm, and multi-stem trees with a stem diameter greater than 1500mm, the calculated RPA has been capped at 707m2 in accordance with Section 4.6.1 of BS5837.2012.
9. Trees marked with * are indicatively plotted on the associated Tree Survey Plan.

TREE PRESERVATION ORDER/CONSERVATION AREA:

CBA Trees has not been instructed to investigate whether trees on or adjacent to the site are protected by a Tree Preservation Order or located within a Conservation Area.

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
1*	Common Laburnum *Laburnum anagyroides*	5	S	120	7	1.4	N 2 E 1.5 S 2 W 1.5	N 2 E 2 S 1.5 W 1.5	Semi-mature	Good	Structural Condition - Fair Bifurcated at 1.2m above ground level Offsite tree Developing tree	None required at time of survey	20+	C1
2*	Pedunculate Oak *Quercus robur*	6	MS	130 190 160	35	3.4	N 4 E 4 S 4 W 4	N 1 E 1 S 1 W 1	Semi-mature	Good	Structural Condition - Fair Offsite tree Unable to verify health and safety due to no access Low hanging branches Minor deadwood in crown Tight forks with included bark Trifurcated at ground level	None required at time of survey	20+	C1+2
3*	Silver Birch *Betula pendula*	7	S	300	-	-	N 5 E 4 S 3 W 5	N 3 E 3 S 3 W 3	Early Mature	Dead	Structural Condition - Poor Dead tree	Inform owner of duty of care	N/A	U
4*	Aspen *Populus tremula*	12	MS	300 300	81	5.1	N 5 E 4 S 5 W 5	N 4 E 3.5 S 4 W 4	Early Mature	Good	Structural Condition - Fair Offsite tree Unable to verify health and safety due to no access Old pruning wounds Estimated data Bifurcated	None required at time of survey	20+	C1+2
5*	Common Hazel *Corylus avellana*	5	MS X12	40	9	1.7	N 2 E 3 S 2 W 2	N 2 E 2 S 2 W 2	Semi-mature	Good	Structural Condition - Fair Offsite tree Unable to verify health and safety due to no access	None required at time of survey	20+	C1

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
6*	Common Ash *Fraxinus excelsior*	11	S	460	96	5.5	N 4 E 5 S 6 W 6.5	N 3 E 3 S 3 W 2	Early Mature	Good	Structural Condition - Fair Offsite tree Unable to verify health and safety due to no access Old pruning wounds Epicormics on trunk and in crown Low hanging branches Minor deadwood in crown Multi-stemmed by 2m above ground level	None required at time of survey	10+	C1+2
7	Common Ash *Fraxinus excelsior*	8	MS	70 110	8	1.6	N 2 E 2 S 1.5 W 1.5	N 2 E 2 S 2 W 2	Young	Good	Structural Condition - Fair Bark wound Bifurcated at 1.2m above ground level with southern stem bifurcated again at 2.0m above ground level	None required at time of survey	10+	C1
8	Common Ash *Fraxinus excelsior*	6	S	90	4	1.1	N 2 E 2 S 1.5 W 1.5	N 2.5 E 2.5 S 2.5 W 2.5	Young	Good	Structural Condition - Fair Basal suckers Bark wound Developing tree	None required at time of survey	10+	C1
9*	Sycamore *Acer pseudoplatanus*	16	S	430	84	5.2	N 4 E 5 S 5 W 5	N 8 E 8 S 8 W 8	Early Mature	Good	Structural Condition - Fair Bifurcated at 5.0m above ground level Unable to verify health and safety due to no access Offsite tree Old pruning wounds Minor deadwood in crown Previously crown lifted	None required at time of survey	10+	C1+2

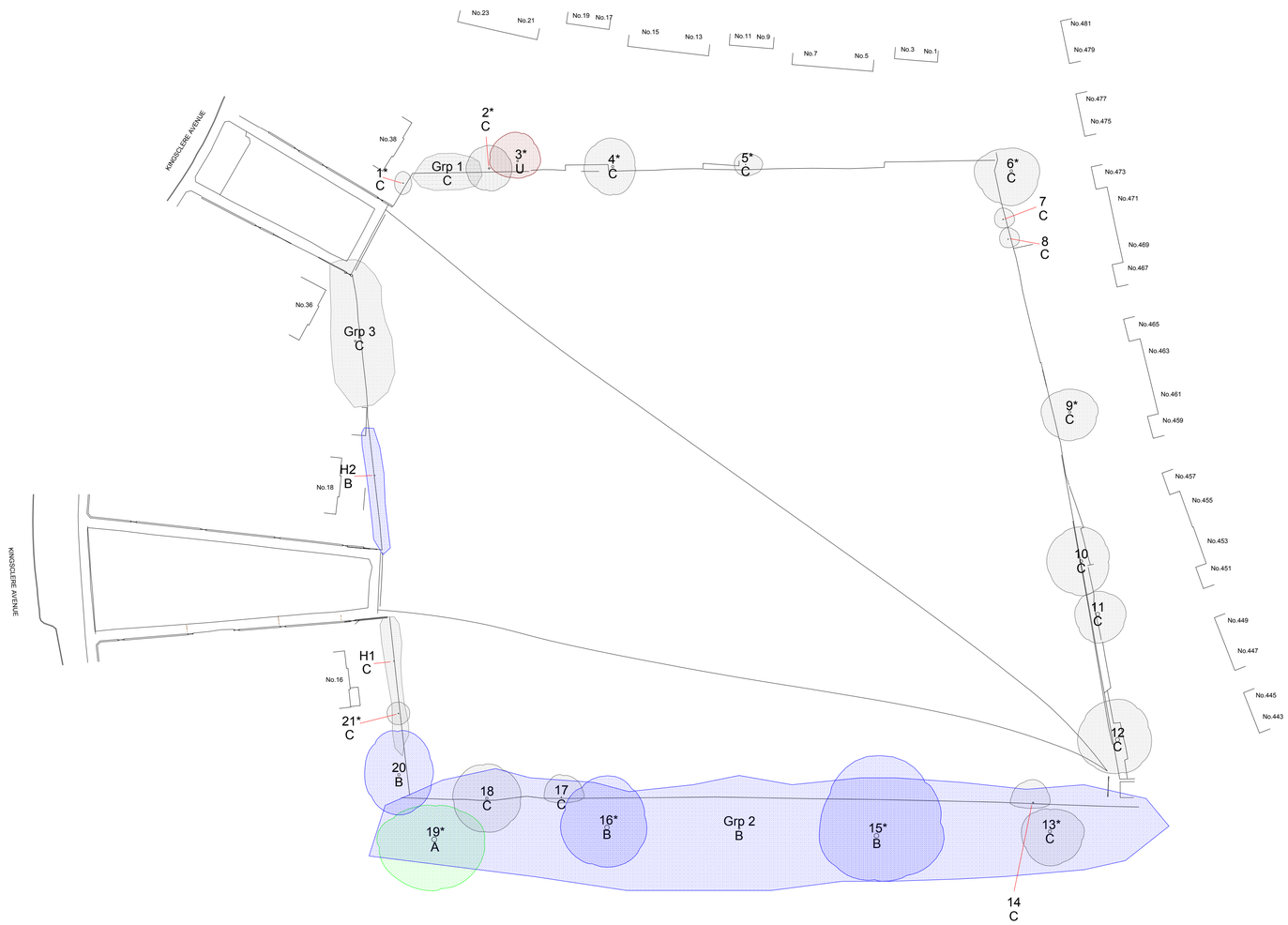
Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
10	Common Ash *Fraxinus excelsior*	14	S	520	122	6.2	N 6 E 5 S 6 W 6	N 4 E 4 S 3 W 2	Early Mature	Good	Structural Condition - Fair Bifurcated at 2.0m above ground level Basal suckers Epicormics on trunk and in crown Low hanging branches Unable to verify health and safety due to no access Old pruning wounds Minor deadwood in crown Appears to grow offsite beyond chain link fencing	None required at time of survey	20+	C1+2
11	Common Ash *Fraxinus excelsior*	12	S	690	215	8.3	N 4 E 5 S 5 W 4	N 4 E 4 S 4 W 4	Mature	Fair	Structural Condition - Poor Unable to verify health and safety due to no access Previously crown reduced Old pruning wounds Minor deadwood in crown Epicormics on trunk and in crown Appears to grow offsite beyond chain link fencing	None required at time of survey	10+	C1
12	Common Ash *Fraxinus excelsior*	14	S	750	254	9.0	N 7 E 6 S 6 W 7	N 2 E 2 S 2 W 2	Mature	Good	Structural Condition - Fair Bark wound Minor deadwood in crown Low hanging branches Old pruning wounds Appears to grow offsite beyond chain link fencing posts Multi-stemmed at 2.5m above ground level Possible lapsed pollard	None required at time of survey	10+	C1

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
13*	Pedunculate Oak *Quercus robur*	14	S	560	142	6.7	N 4 E 6 S 6 W 5	N 5 E 5 S 4 W 4	Mature	Fair	Structural Condition - Fair Unable to verify health and safety due to no access Offsite tree Old pruning wounds Previously crown reduced Minor deadwood in crown	None required at time of survey	20+	C1+2
14	Pedunculate Oak *Quercus robur*	10	S	200	18	2.4	N 4 E 3 S 1 W 4	N 2.5 E 2.5 S 2.5 W 2.5	Young	Good	Structural Condition - Fair Trunk and crown shape distorted Minor deadwood in crown Weighted north	None required at time of survey	20+	C1
15*	Pedunculate Oak *Quercus robur*	21	S	830	312	10.0	N 14 E 12 S 8 W 10	N 4 E 2 S 5 W 3	Mature	Good	Structural Condition – Fair Unable to verify health and safety due to no access Old pruning wounds Offsite tree Bifurcated at 3.5m above ground level Major deadwood in crown Epicormics on trunk and in crown	Inform owner of duty of care	20+	B1+2
16*	Pedunculate Oak *Quercus robur*	20	S	800	290	9.6	N 9 E 7 S 7 W 8	N 3 E 3 S 3 W 3	Mature	Good	Structural Condition - Fair Unable to verify health and safety due to no access Old pruning wounds Offsite tree Bifurcated at 5.0m above ground level Crown shape distorted Epicormics in crown Major deadwood in crown	Inform owner of duty of care	20+	B1+2
17	Pedunculate Oak *Quercus robur*	6	S	140	9	1.7	N 4 E 4 S 1 W 3	N 2 E 2 S 2 W 2	Young	Good	Structural Condition - Fair Crown shape distorted due to group pressure Developing tree Weighted north	None required at time of survey	20+	C1

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
18	Common Ash *Fraxinus excelsior*	18	S	450	92	5.4	N 6 E 6 S 6 W 6	N 2 E 2 S 2 W 2	Early Mature	Good	Structural Condition - Poor Bifurcated at 5.0m above ground level Major deadwood in crown Large bark wounds on north and west sides of lower trunk	Remove major deadwood	10+	C1+2
19*	Pedunculate Oak *Quercus robur*	21	S	890	358	10.7	N 6 E 9 S 9 W 10	N 8 E 6 S 5 W 5	Mature	Good	Structural Condition - Fair Unable to verify health and safety due to no access Old pruning wounds Offsite tree Major deadwood in crown	Inform owner of duty of care	40+	A1+2
20	Common Walnut *Juglans regia*	14	S	450	92	5.4	N 8 E 6 S 7 W 6	N 2 E 2 S 2 W 2	Early Mature	Good	Structural Condition - Fair Unable to verify health and safety due to no access Old pruning wounds Offsite tree Bifurcated at 2.0m above ground level Low hanging branches Minor deadwood in crown	None required at time of survey	20+	B1+2
21*	Lawson Cypress *Chamaecyparis lawsoniana*	6	S	140	9	1.7	N 2 E 2 S 2 W 2	N 2 E 1 S 2 W 1	Semi-mature	Good	Structural Condition - Fair Unable to verify health and safety due to no access Offsite tree Low hanging branches	None required at time of survey	10+	C1
Grp 1	Privet	5	S	100	5	1.2	N - E - S - W -	N - E - S - W -	Early Mature	Good	Structural Condition - Fair Offsite tree Unmaintained hedgerow growing at end of garden	None required at time of survey	10+	C2

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
Grp 2	Common Ash Field Maple Pedunculate Oak Silver Birch Goat Willow	9	S	300	41	3.6	N - E - S - W -	N - E - S - W -	Semi-mature	Good	Structural Condition - Fair Unable to verify health and safety due to no access Trunk and crown shapes distorted Offsite trees Old pruning wounds Minor deadwood in crowns Low hanging branches	None required at time of survey	20+	B2
Grp 3	Leyland Cypress Silver Birch Common Ash Goat Willow	8	S	300	41	3.6	N - E - S - W -	N - E - S - W -	Early Mature	Good	Structural Condition - Fair Crown shapes distorted due to group pressure Unable to verify health and safety due to no access Offsite trees Minor deadwood in crowns Low hanging branches	None required at time of survey	10+	C2+1
H1	Lawson Cypress Privet	2	S	100	5	1.2	N - E - S - W -	N - E - S - W -	Semi-mature	Good	Structural Condition - Fair Offsite trees Boundary edge hedge becoming unmaintained	None required at time of survey	10+	C2
H2	Privet	2	S	100	5	1.2	N - E - S - W -	N - E - S - W -	Semi-mature	Good	Structural Condition - Fair Offsite trees Boundary edge hedgerow	None required at time of survey	20+	B2

CB2



CBA Trees

Russell House
Unit 20 Chalcroft Business Park
Burnetts Lane, West End
Southampton, SO30 2PA
Tel: 02380 986229

10579
Kingsclere Avenue, Havant
Tree Survey Plan

SCALE :	DATE :
1 : 500 @ A1	29/03/2016
MAP FILENAME : CBA10579.01 TSP	**BASE PLAN:** 1509s010W (with overview)

N

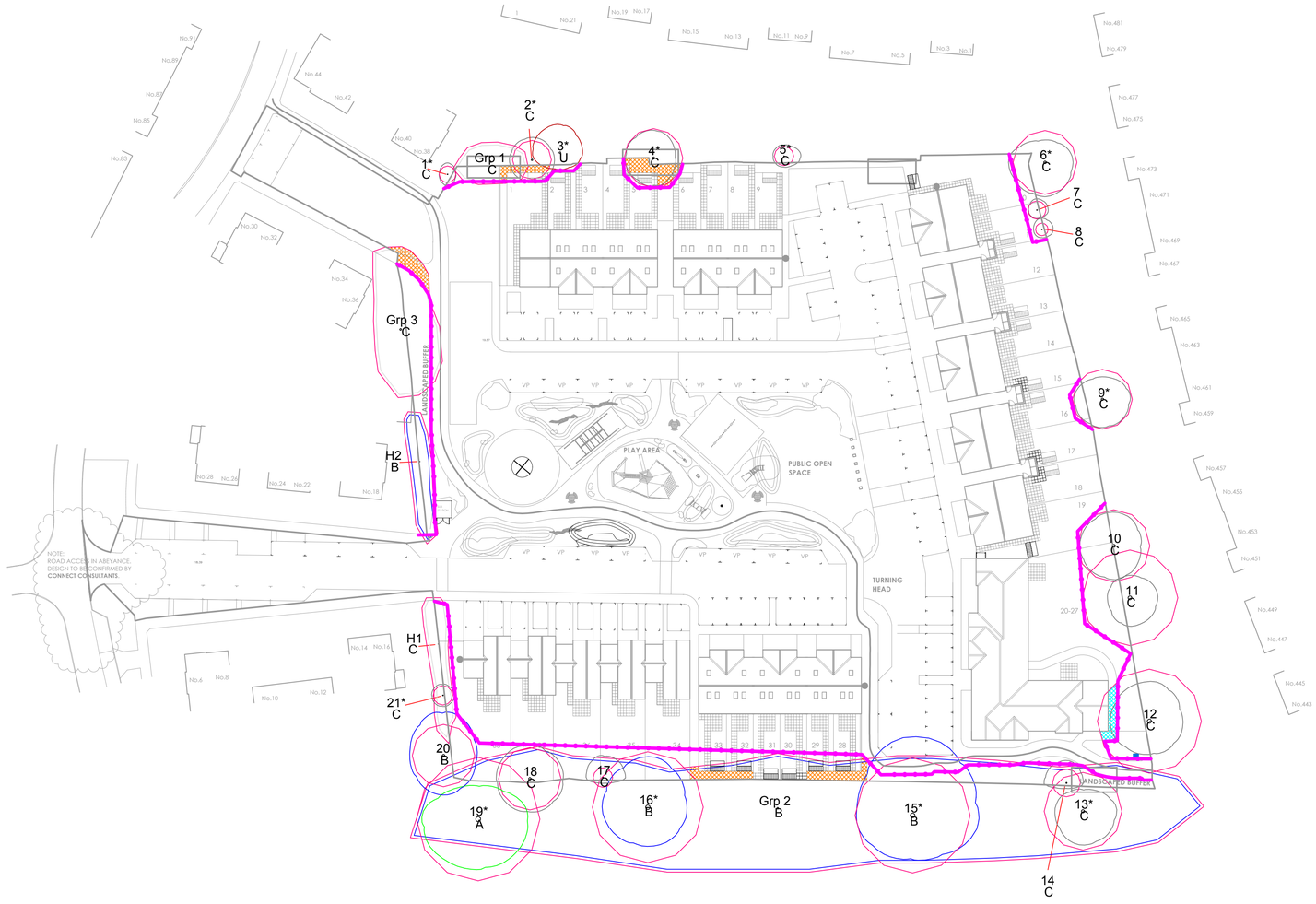
Pear Technology Services Ltd; Email info@peartechnology.co.uk
Maps based on Ordnance Survey MasterMap or 1:25000 Mid-scale data with the permission of the Controller of HMSO. © Crown Copyright

NOTE:
Root Protection Areas and Shading Arcs not shown on this plan
Trees marked with * and Groups and Hedges are indicatively plotted

Crown Spread
Root Protection Area
Shading Arc
Category 'A'
Category 'B'
Category 'C'
Category 'U'

0 80m

CB3



KEY

ROOT PROTECTION AREA (RPA)
CROWN SPREAD
TREE NUMBER
CATEGORY

LINE OF PROTECTIVE FENCING

NO/ MINIMAL DIG CONSTRUCTION

FIT FOR PURPOSE GROUND PROTECTION PRIOR TO NO DIG CONSTRUCTION FOOTPATH BEING LAID

Note: All trees, groups and hedges will be retained

JOB TITLE
Kingsclere Avenue,
Havant, PO9 4RZ

DRAWING TITLE
Tree Protection Plan

CBA DRAWING No.
CBA10579.02_TPP

BASE PLAN DRAWING No.
PP1308.101-015K1
SITE LAYOUT

SCALE 1:500 @ A1

DRAWN LI

DATE April 2016

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CBA Trees.
Russell House, Unit 20 Chalcroft Business Park,
Burnetts Lane, West End, Southampton, SO30 3PA
Tel: 02380 986229

N

5m 10m 20m 30m 40m 50m

CB4

	TREE WORKS SCHEDULE			
	Client:	Portsmouth City Council	**Site:**	Kingsclere Avenue, Havant
	Date:	April 2016	**Consultant:**	Stefan Rose *BSc (Hons), Tech Cert ArborA, TechArborA*

Tree No.	Species	Recommended Works
1*	Common Laburnum *Laburnum anagyroides*	None required at time of survey
2*	Pedunculate Oak *Quercus robur*	None required at time of survey
3*	Silver Birch *Betula pendula*	None required at time of survey
4*	Aspen *Populus tremula*	None required at time of survey
5*	Common Hazel *Corylus avellana*	None required at time of survey
6*	Common Ash *Fraxinus excelsior*	None required at time of survey
7	Common Ash *Fraxinus excelsior*	None required at time of survey
8	Common Ash *Fraxinus excelsior*	None required at time of survey
9*	Sycamore *Acer pseudoplatanus*	None required at time of survey
10	Common Ash *Fraxinus excelsior*	None required at time of survey
11	Common Ash *Fraxinus excelsior*	None required at time of survey
12	Common Ash *Fraxinus excelsior*	Crown lift western sector of canopy to provide 5.0m clearance from ground level.
13*	Pedunculate Oak *Quercus robur*	None required at time of survey
14	Pedunculate Oak *Quercus robur*	None required at time of survey
15*	Pedunculate Oak *Quercus robur*	Inform owner of duty of care
16*	Pedunculate Oak *Quercus robur*	Inform owner of duty of care
17	Pedunculate Oak *Quercus robur*	None required at time of survey
18	Common Ash *Fraxinus excelsior*	Remove major deadwood
19*	Pedunculate Oak *Quercus robur*	Inform owner of duty of care
20	Common Walnut *Juglans regia*	None required at time of survey
21*	Lawson Cypress *Chamaecyparis lawsoniana*	None required at time of survey

Tree No.	Species	Recommended Works
Grp 1	Privet	None required at time of survey
Grp 2	Common Ash Field Maple Pedunculate Oak Silver Birch Goat Willow	None required at time of survey
Grp 3	Leyland Cypress Silver Birch Common Ash Goat Willow	None required at time of survey
H1	Lawson Cypress Privet	None required at time of survey
H2	Privet	None required at time of survey

- It is advised that all remedial tree works such as pruning is carried out between July and September or November and February. Tree works should also avoid the season for nesting birds.
- All tree works should be carried out in accordance with current best practice guidelines and BS3998: 2010 – Tree Works. Only natural target pruning method to be used.
- We recommend the use of an Arboricultural Association Approved Contractor or an ISA Certified Arborist/Tree Worker suitably insured and experienced to carry out the tree works.

CB5

TREES AT_____:

SUMMARY OF

TREE PROTECTION MEASURES

Introduction

This leaflet shall be issued to all site personnel as part of their induction briefing.

It describes in summary form the precautions that site personnel shall at all times follow, to ensure that the existing trees on the site come to no harm.

The precautions described are neither arbitrary nor reducible and must be adhered to in full.

These precautions are necessary because unprotected trees are very vulnerable to damage during demolition and construction works.

Furthermore, many of the trees on the site are under **LEGAL PROTECTION** and damaging them can result in heavy fines.

Two common misconceptions about trees:

MYTH: Trees have deep taproots and so shallow excavations will not harm the tree.
FACT: 90% of all tree's roots are found in the top 600mm of soil; all excavations near to trees are likely to cause root damage which can kill the tree.
MYTH: Trees will quickly heal over any bark wound, with no ill effect.
FACT: Bark wounds take years to heal and larger ones never do; missing bark can lead to disease and even the death of the tree.

Tree Protection

All trees adjacent to unsupervised work areas have been protected by tree protection barriers.

These barriers must be respected at all times and no attempts shall be made to damage, bypass or ignore them.

In areas designated for supervised working, no works shall be undertaken without the supervisor being present or without him/her issuing a "carry on" chit.

Prohibitions Adjacent to Trees

Inside the exclusion area of the tree protection, the following prohibitions shall apply.

- **No** digging or scraping
- **No** storage of plant or materials
- **No** vehicular access
- **No** fire lighting
- **No** handling, discharge or spillage or any chemical substance
- **No** water-logging

In addition to the above, further precautions shall be taken near to trees.

- A 10m separation distance shall be observed between trees and any substance injurious to their health, including fuels, oil, bitumen, cement (including washings) builders' sand, concrete mixing and other chemicals.

- No fire shall be lit such that flames come within 5m of any foliage; this shall be taken to mean a fire separation distance to the leaved of 20m.

Avoiding Damage to Stem and Branches

Care shall be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights, can operate without coming into contact with trees.

Consequently, any transit or traverse of plant in proximity to trees shall be conducted under the supervision of a spotter to ensure that adequate clearance is at all times maintained.

In some circumstances, it may be impossible to achieve this, necessitating the pruning of the tree.

If this is necessary, a specialist team shall be called in following referral to the project Arboriculturist.

No tree pruning shall be undertaken by demolition or construction personnel.

Asking for Help

If you see any damage to a tree or its protective fencing, or if you need a tree pruning for plant clearance, contact **CBA Trees** as follows:

Office Telephone: 020 8098 6229

REMEMBER:

ALL TREE DAMAGE IS AVOIDABLE –

SO AVOID IT!

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

TREE PROTECTION AREA

KEEP OUT !

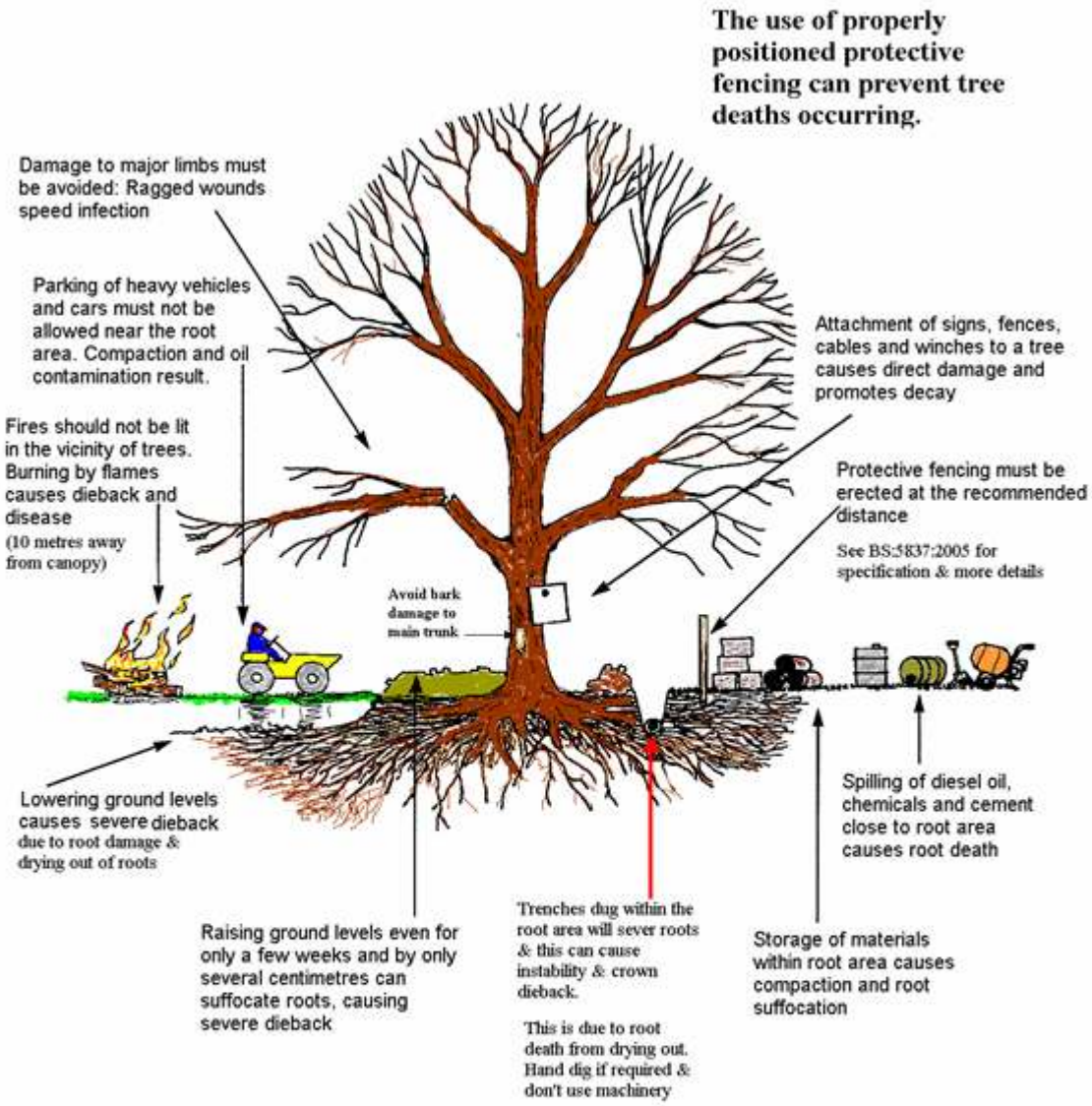
(TOWN & COUNTRY PLANNING ACT 1990)

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

Common causes of Tree Death



Please use copies of this as an on-site poster for personnel

(Source: Arboricultural Information Exchange website, 2005)

CB6

The Professional Arboricultural Consultancy

Qualifications of
James Fuller
Senior Consultant

James Fuller FdSc.Arb, BTEC Nat.Dip Arb, TechArbor.A joined CBA Trees in 2007 as a gap-year junior surveyor/arborist having attained the Foundation Degree in Arboriculture at Sparsholt College near Winchester and has more recently acquired the Professional Tree Inspector's Certificate.

Over the years James has gained experience in every field of our work, undertaking all elements of consultancy including large BS5837:2012 tree surveys using the latest data capture equipment to produce Implication Assessments and Method statements for planning applications.

Having broadened his knowledge and gained considerable experience, James is now a retained Senior Consultant, undertaking site assessments, site monitoring, and provision of advice to prominent development companies for large and complex projects.