

Wilson House
Developments Ltd

ARBORICULTURAL DEVELOPMENT STATEMENT

Site:
Pine Close, Westergate Street,
Westergate



ARBORICULTURAL DEVELOPMENT STATEMENT

Arboricultural Implications Assessment and Method Statement

guided by recommendations within BS5837:2012

Client:	Wilson House Ltd
Site:	Pine Close, Westergate Street, Westergate
Arboricultural Consultant:	Stefan Rose BSc (Hons), TechCert ArborA, TechArborA
Date:	May 2014

SUMMARY

The proposal is for the construction of four, two-storey detached houses, associated garages and car parking, an access road and footpath at the site of Pine Close, Westergate Street, Chichester. It is for a revised layout of plots 1-4 that was previously approved for planning, the original layout having already been granted full permission. This Arboricultural Development Statement (ADS) will demonstrate the protection measures for the retained trees.

This Arboricultural Development Statement (ADS) should be read in association with the Tree Protection Plan CBA7264.04 TPP. This plan identifies the individual trees and groups of trees to be retained and those to be removed.

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.

Tree 7 is a low grade tree with evidence of *Inonotus hispidus* fruiting bodies that have been growing on the trunk. It is considered not to have a long term retention value and has been accepted by Arun District Council as being removed under previous planning permissions. Trees 1, 2, 3, 4, 5, 6, 8, and Group 1 are to be retained.

A total of 7 (seven) individual trees and 1 (one) group of trees can be retained within the development as detailed within this report. CBA Trees believes that the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

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SUPPORTING INFORMATION/APPENDICES:

CB1	Tree Survey Schedule and Tree Survey Plan CBA7264.01A
CB2	Root Protection Area Schedule
CB3	Tree Protection Plan CBA7264.04 TPP

GUIDING PRINCIPLES/APPENDICES:

CB4	Tree Protection Guidance Leaflet Construction Exclusion Zone Site Notice Common Causes of Damage During Construction Works
CB5	Flow Diagram Summarising the Planning Process for Trees on Development Sites
CB6	Qualifications and Experience

1.0 INTRODUCTION

- 1.1 There is a development proposal for the site of Pine Close, Westergate Street, Chichester. The site is located to the East side of Westergate Street, opposite the junction with Meadow Way. This is within the district of Arun District Council.
- 1.2 The proposal is for the construction of four, two-storey detached houses, associated garages and car parking, an access road and footpath. This proposed development is to the East of the other half of the site where the development of a block of eight flats has already been approved.
- 1.3 The proposal is a revision to the previously approved layout for the above described scheme.
- 1.4 Document disclosure provided:
 - Topographical Site Survey by Shaw Colegate Land and Building Surveyors
 - Site layout drawing no. 1643 – 01 rev C, by ADP Architects.
- 1.5 The client provided the original site plans and locations of the trees, and these have been the basis for the production of subsequent plans.
- 1.6 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 that is acceptable in arboricultural terms.

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, appended at CB1.
 - To produce an AutoCAD Tree Survey Plan that relies on the accuracy of the survey provided by the client. (Plan CBA7264.7264.01A is appended with the Tree Survey Schedule at CB1).
 - To produce a schedule of Root Protection Areas in accordance with BS5837:2012 Annex D, appended at CB2.
 - To undertake an Arboricultural Implications Assessment (AIA) of the 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.
- 2.2 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 CBA7264.04 TPP appended at CB3.

3.0 DESCRIPTION OF THE SITE

- 3.1 The site was previously wasteland between the area referred to as The Homestead and Sunnyside Cottage, and includes a piece of land to the East of Sunnyside Cottage. There are currently no structures on the land subject to this planning application. A recently built block of flats is located behind the area referred to previously as The Homestead. In the area subject to this application, ground works have started on the previously approved planning application.
- 3.2 The site is close to the edge of a village and has residential properties to the North and South and the A29 road is to the West. To the East of the site is an agricultural field.

4.0 THE TREE STOCK

- 4.1 A tree survey was undertaken by CBA Trees on 14th May 2014. The tree survey exercise identified 8 (eight) individual trees and 1 (one) group of trees; a Tree Survey Schedule and Plan CBA7264.01A are appended at CB1.

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 were no 'U' grade trees on or adjacent to the site at the time of surveying.

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 were no individual 'A' grade trees on or adjacent to the site at the time of surveying.

Category B = Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years. There were no individual 'B' grade trees on or adjacent to the site at the time of surveying.

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 8 (eight) individual 'C' grade trees and 1 (one) group of trees in total on or adjacent to the site at the time of surveying (Trees 1-8 and Group 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 arboricultural values respectively.

- 4.3 For a 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 Following consultation with Arun District Council, CBA Trees has been made aware that Tree Preservation Order (TPO/3/91/AL) protects trees 1-7. 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 or, in excess of those shown within this development statement, it will be necessary to obtain written consent from Arun District Council. No work should take place on off-site trees without the consent of the tree owner.

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) (appended at CB2). 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 development drawing by ADP Architects drawing no.1643-01 rev C prepared and modified, to include the relevant Tree Survey data and the information as shown on plan CBA7264.04 TPP, appended at CB3.

7.0 SUMMARY OF ARBORICULTURAL IMPLICATIONS

- 7.1 The following summary includes all trees and groups but details implications for only those trees and groups which will require mitigation measures to allow for construction operations. Trees and groups not implicated can be fully protected in accordance with BS5837:2012 as indicated on Plan CBA7264.04 TPP.
- 7.2 Tree 7 is advised for removal for reasons of sound arboricultural management as its long term retention is undesirable within the context of a housing layout, due to the presence of the decay fungus *Inonotus hispidus*. This fungus can cause structural weakness within the trunk or main scaffold branches.
- 7.3 Although Tree 7 was graded as a 'C' grade tree in the initial survey (see CB1), it is advised that this tree is considered to be a category U tree on health and safety grounds. This was accepted under the previously approved planning layout. Additional planting upon final landscaping of the site can mitigate the loss of this tree.

PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
1	Common Ash	C1+2	Footprint of the proposed carport/garage in Plot 4 encroaches slightly into the RPA	- Retained - Damage to and loss of roots	Tree protection measures as per section 2 of this report including tree protection barriers and fit for purpose ground protection
2	Common Sycamore	C1+2	Footprint of the proposed carport/garage in Plot 3/4 encroaches slightly into the RPA	- Retained - Damage to and loss of roots	Tree protection measures as per section 2 of this report including tree protection barriers and fit for purpose ground protection
3	Common Ash	C1+2	- Footprint of the proposed garage/car port of Plot 4 on edge of RPA - Footprint of the proposed house of Plot 3 on edge of RPA	- Retained - Damage to and loss of roots	Tree protection measures as per section 2 of this report including tree protection barriers and fit for purpose ground protection
4	Common Ash	C1+2	- Footprint of the proposed house of Plot 3 encroaches into the RPA - Footprint of the proposed house of Plot 2 encroaches into the RPA	- Retained - Damage to and loss of roots	Tree protection measures as per section 2 of this report including tree protection barriers and fit for purpose ground protection
5	Common Ash	C1+2	- Footprint of the proposed house of Plot 2 encroaches into the RPA - Footprint of the proposed house of Plot 3 on edge of RPA	- Retained - Damage to and loss of roots	Tree protection measures as per section 2 of this report including tree protection barriers and fit for purpose ground protection
6	Common Ash	C1+2	Unaffected by development	Retained	Tree protection measures as per section 2 of this report including tree protection barriers

PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
7	Common Ash	C1+2	Tree removed due to <i>Inonotus hispidus</i> fungal fruiting bodies	Removed	Replacement Planting
8	Common Ash	C1+2	Unaffected by development	Retained	Tree protection measures as per section 2 of this report including tree protection barriers
Grp 1	Common Hawthorn Elm Elder	C2	Unaffected by development	Retained	Tree protection measures as per section 2 of this report including tree protection barriers

8.0 PRE-COMMENCEMENT SITE MEETING

- 8.1 A pre-commencement site meeting shall be held prior to any works commencing on site, to agree all approved processes with the arboricultural consultant, the construction personnel and Arun District Council. 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 CB4 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 fencing, information notices shall be fixed to the fencing at 5m intervals. These notices shall be of all-weather construction and shall be substantially in the form of the specimen appended at CB4 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 fencing.
- 10.3 With regard to the trees to be retained, where protected by a Tree Preservation Order, prior approval from Arun District Council will be required, if any works to these trees are proposed prior to full planning permission being granted detailing the approved tree works.
- 10.4 Consideration should be given to the timing of the proposed 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 official 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 if 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 which 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 contractors 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 European Habitats Directive 1992/Nesting Birds Directive*.

* Advice taken from the Arboricultural Associations website on 16th May 2013.

- 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 Arun District 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 Reasons for Tree Protection

The correct and timely installation and maintenance of tree protection measures is the most important action necessary to ensure retained trees, groups, woodlands and hedgerows on and adjacent to the site, remain unaffected by development operations. Exclusion of construction activity from the outset of site preparation will ensure those trees identified for retention are maintained in a safe and healthy condition.

Although aerial parts of the tree, trunk, branches and twigs are obvious, extensive and irreparable damage can be caused to the roots and rooting environment without any immediately noticeable effect. Severance of large roots in close proximity to the stem can result in the immediate loss of stability and/or rapid death whilst damage to

more distal parts of the root system or rooting environment will result in a slow decline in tree health over a period of several years, resulting in premature loss.

11.2 *Damage to Trunks Stems and Branches*

Impact damage to the crown of the tree can result in the loss of leaves which produce starch and sugars (carbohydrates) and a reduction in the visual amenity which established trees provide. These carbohydrates are necessary for maintaining all biological functions within the tree, including growth, reproduction and defence. Extensive crown damage will reduce the tree's ability to produce carbohydrates and increase physiological stress on the tree.

The bark protects the underlying vascular tissue and cells responsible for growth from drying, disease and decay. Bark is loosely attached to the underlying tissue and can be easily damaged or removed through direct contact. It is particularly susceptible to damage when trees are young or in early spring following the onset of growth.

Impact damage which removes bark, results in dysfunction of the underlying vascular tissue preventing transport of water, mineral nutrients and carbohydrates to parts of the tree to which they are connected. If damage to the bark extends around the whole circumference, the root, branch or trunk the section beyond the damage will be killed.

Branches which are either broken or are torn from the trunk of the tree, create wounds which are prone to colonization by wood destroying organisms. These organisms cause internal decay, which result in future tree failure and premature loss.

11.3 *Purpose of Tree Protection*

All site operations will be planned, implemented and supervised so as to prevent the following:

- 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

11.4 *Tree Protection*

Before starting any site works tree protection barriers and ground protection will be installed in accordance with Tree Protection Plan CBA7264.04 TPP appended at CB3. This will occur immediately following the completion of tree works and prior to any site preparation works starting.

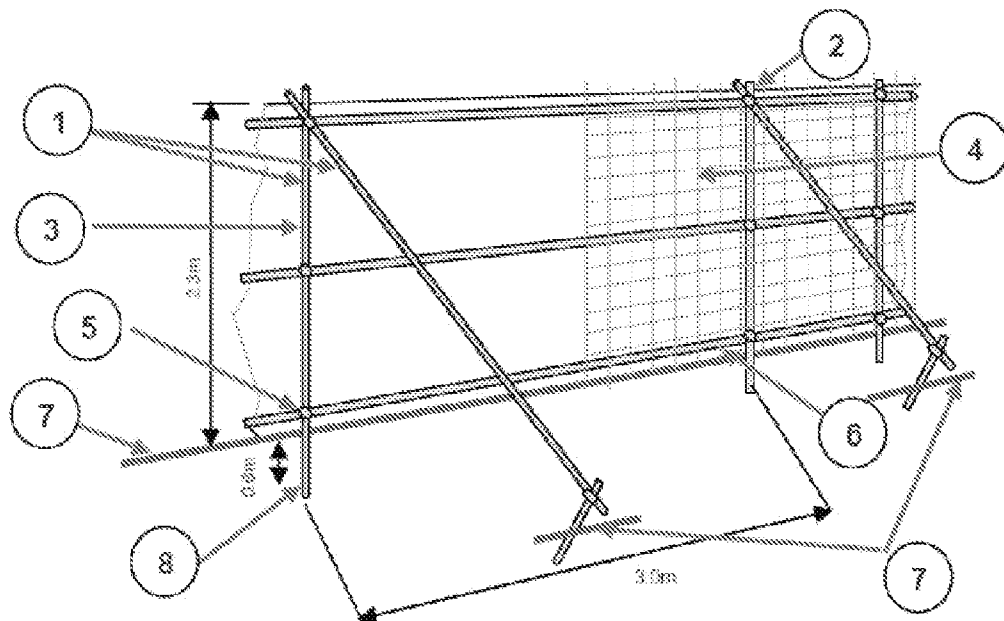
A copy of the Tree Protection Plan will be displayed in the site office and canteen as a point of reference for all site operatives.

Fencing will remain *in-situ* until all site works are complete and all plant machinery are removed from site or otherwise agreed with Arun District Council.

11.5 Standard Protective Fencing

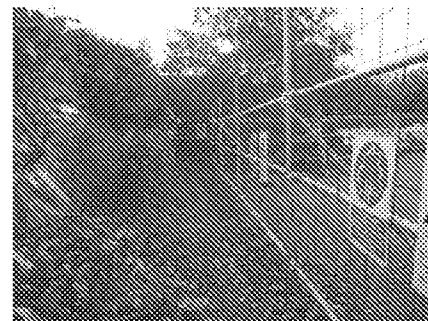
Trees 1-6, 8 and Group 1 are adjacent to areas of site works and construction activity and will be protected by installing the following protective fence as indicated on Tree Protection Plan CBA7264.04 TPP. The barrier is to comprise of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weldmesh panels should be securely fixed with wire or scaffold clamps.

In accordance with Section 6.2.2.4 of BS5837:2012, weldmesh panels on rubber or concrete feet are not resistant to impact, and will not be used for tree protection purposes.



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 fencing to avoid easy dismantling
7. Ground level
8. Approximately 0.6m driven into the ground

Example of protective fencing:



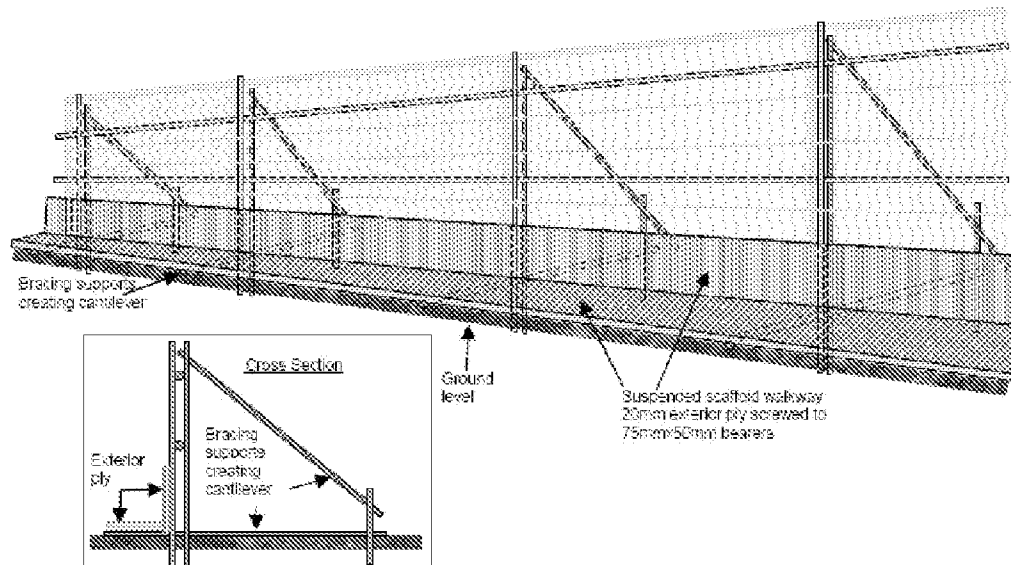
11.6 Ground Protection

Pedestrian movements

Trees 1-6 require construction activity within the identified Construction Exclusion Zone (CEZ). Ground protection will be implemented for these trees as per the Tree Protection Plan CBA7264.04 TPP.

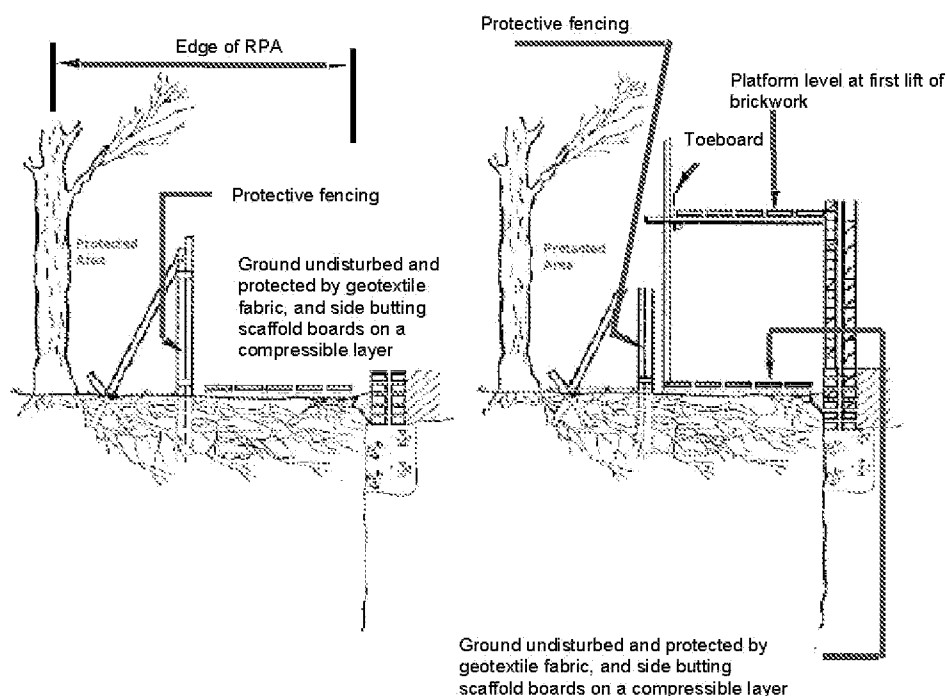
Ground protection will be constructed in accordance with Figure 2 below, and will consist of a suspended walkway decked with 20mm exterior grade Plyboard supported on 75 x 50mm bearers. The specification provides for pedestrian access only.

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 Trees 1-6. This method will consist of a single thickness of butt jointed scaffold boards supported on a 150mm thick layer of composted woodchip which is prevented from mixing with the underlying soil by geotextile separation layer.

Figure 3: Ground Protection Specification



Site and Machinery Access within Construction Exclusion Zone

Access is required within the CEZ of Trees 1-6.

At this stage, no information has been provided as to the type, weight or ground pressure of the equipment to be deployed, and therefore the exact type of ground protection is yet to be specified.

The method of ground protection will be engineer designed and fit for purpose. Prior to the commencement of works, ground protection will be assessed by the retained arboricultural consultant and approved in writing by the Arun District Council tree officer.

A compressible layer will be incorporated into the design to minimise compaction of the rooting environment. This layer could consist of a thick layer of composted wood chip or preparatory neoprene mats.

As guidance, ground protection could consist of:

- Hardwood Eki Mats. These mats are suitable for rubber tyre vehicles and should be laid to form a single track of either 3m or 5m width. As a guide only, these mats may be used to support evenly distributed weights of up to 21 tonne for 3m and 35 tonne for 5m depending on ground conditions on site.
- Aluminium preparatory Trackway system e.g. Eve Trackway. This trackway consists of extruded aluminium planks that are connected to create this high capacity panel that has a corrugated surface to aid vehicle traction. By interconnecting panels in any combination of widths and layers, the heavy-duty system provides guaranteed access for any load, up to 1000 tonnes.

Prior to the commencement of works, ground protection will be assessed by the retained arboricultural consultant and approved in writing by the Arun District Council Tree Officer.

Ground protection within the CEZ of Trees 1-6 will remain *in-situ* for the duration of the construction project.

Once the tree protection is 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

The area within the CEZ will be regarded as **sacrosanct**, and the tree protective fencing shall not be taken down or relocated at any time without the written approval of Arun District Council. An example of a CEZ notice is appended at CB4.

12.0 EXISTING SERVICES

- 12.1 No Information has been provided on the location and size of existing services. However, 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*.
- 12.2 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.
- 12.3 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 as foamed concrete.

13.0 AVOIDING DAMAGE TO STEMS AND BRANCHES

- 13.1 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.

14.0 VEHICULAR MOVEMENTS

- 14.1 There should be minimal vehicular movement in the potential rooting zone outside the CEZ identified on Plan CBA7264.04 TPP set out and protected by the tree protective barrier.
- 14.2 It is not anticipated that there will be a need for excess vehicular movement near the retained trees, given that there is an established access from the front of the site.

15.0 SITING OF TEMPORARY OFFICES, TOILETS AND MATERIAL STORAGE COMPOUNDS

- 15.1 It is anticipated that all storage materials and deliveries shall make use of the existing access from Pine Close in order to avoid unnecessary damage to tree roots.
- 15.2 The locations shall be agreed in writing with Arun District 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 Arun District 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.

15.3 *Site Huts*

All site huts (if required) 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 fencing line. Site huts can be used as part of the protective fencing boundary, and in some cases, can be beneficial where installation does not conflict with the aerial parts of the tree.

15.4 *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.

16.0 *GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE CONSTRUCTION EXCLUSION ZONE*

16.1 Inside the CEZ formed by the protective fencing and ground protection 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 Arun District Council prior to the specific activity taking place.

16.2 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 CB4 Common Causes of Damage During Construction Works)

17.0 *UTILITY SERVICE CONNECTIONS*

17.1 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, 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.

17.2 If service and utility locations are approved and located within the CEZ of retained trees, they 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.
- 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.
- 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.
- All trenches containing exposed tree roots must not 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, 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.

18.0 INSTALLATION OF BOUNDARY FENCES

18.1 Tree Protection Plan C7264.04 TPP indicates that boundary fences are proposed within the CEZ of retained trees. As previously indicated within this ADS, 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.

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

- Fencing will be designed so as to minimise the need for excavation and allow for this work to be carried out by use of hand tools.
- Fencing will be installed during period of dry weather so as 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.
- Bracing of posts off retained trees will not be permitted under any circumstances.

19.0 SITE MONITORING AND SUPERVISION

- 19.1 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. Arun District Council to Condition site monitoring if required.
- 19.2 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 tree/s), the aim of the visits is to maintain on-going liaison with all personnel involved in the site development, Arun District Council and its Tree Officer.
- 19.3 Any defects requiring rectification shall be notified to the Contractor/Site Manager and the client.
- 19.4 In addition, a site logbook for tree protection measures is kept to record all stages of the development from the erection of the protective fencing, right through to the completion of the project. This will be made available to the arboricultural consultant and Arun District Council if required, to show evidence of continuous site monitoring.

Example pro-forma

Date	Activity	Checked	Comments/ damage noted	By whom	Signed	Action taken
	Erection of protective fencing					
	Inspection of protective fencing					

- 19.5 The Arun District 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.

20.0 REPORT DAMAGE TO TREES AND TREE PROTECTION FENCING

- 20.1 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 Arun District Council.
- 20.2 Should protective fencing become damaged so as to impair its function in protecting trees, all work shall cease in the vicinity of the damage, until the fence has been returned to standard.

21.0 REMOVAL OF PROTECTIVE FENCING

- 21.1 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 fencing will be dismantled.
- 21.2 This fence 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 fencing materials will need to be removed from site immediately.

22.0 COMPLETION MEETING

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

23.0 FUTURE MANAGEMENT AND POST DEVELOPMENT TREE MANAGEMENT

- 23.1 The site owner will be under an obligation to maintain and manage the tree stock on site, and should seek to address this obligation through having regular tree inspections by a suitably qualified arboricultural consultant.
- 23.2 At Section 8.8 of BS5837:2012, emphasis is placed on the aftercare of trees following completion of development works. Whilst we support these recommendations, this is a matter for our clients to consider and for Arun District Council to determine whether they wish to apply a Condition relating to this aspect of work.

Post development management of BS5837:2012

8.8.3 Post-development management: existing trees

A programme of inspections to advise on any necessary work to retained trees should be drawn up in conjunction with an arboriculturist. This programme might include recommendations for frequency of inspection and/or proposals for tree work [see Note to 5.3.4c)], and should take the form of a management plan. A copy of this plan should be supplied to all parties with an interest in future site management.

NOTE 1 Trees growing on a site before development takes place can, if adversely affected, be in decline over a period of several years before they die.

NOTE 2 Where the trees in question are subject to legal, planning or other regulatory controls, the appropriate authority needs to be informed and any necessary agreements obtained prior to work being undertaken.

8.8.4 Post-development management: new plantings

8.8.4.1 Regular maintenance of newly planted trees is of particular importance for at least three years during the critical post-planting period and might, where required by site conditions, planning requirements or legal agreement, be for 5 years or more. A detailed maintenance schedule covering this period should be prepared in conjunction with the landscape design proposals, and appropriate arrangements made for its implementation.

NOTE Maintenance operations would normally include weed control and watering as necessary, inspection and adjustment of support systems and monitoring of growth. Formative pruning might also be required to achieve desired effects or to provide for access or clearance.

8.8.4.2 Defects that become apparent during the maintenance period should be addressed by appropriate remedial works (including replacement planting where necessary) as advised by a competent person.

24.0 CONCLUSIONS

- 24.1 The development proposals for the construction of 4, 2-storey detached houses, associated garages and car parking, an access road and footpath have been assessed broadly in accordance with BS5837:2012 “*Trees in Relation to Design, Demolition and Construction – Recommendations*”.
- 24.2 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.
- 24.3 Tree 7 is a low grade tree with evidence of *Inonotus hispidus* fruiting bodies that have been growing on the trunk. This tree is considered not to have a long term retention value and has been accepted by Arun District Council as being removed under previous planning permissions. Trees 1, 2, 3, 4, 5, 6, 8, and Group 1 are to be retained.
- 24.4 It is our opinion that the loss of the one tree will not have a detrimental effect on the local visual amenity or significantly alter the visual treed character of the local area, if a landscaping scheme that includes quality trees, selected to suit the site conditions and the space available, is implemented.
- 24.5 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.

25.0 CONTACT LIST

25.1 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
- Arun District Council's Tree Officer
- Arun District Council's Planning Case Officer
- Site Supervisor and Foreman

25.2 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.

26.0 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
- Town and Country Planning Acts





the recommendations of British Standards 5837:2012 and current arboricultural best practice.

instructed, for future identification on site, has been tagged using small durable metal or plastic tags.

s through the site, height dimensions are estimated and are given in metres. Accurate heights, measured with the aid of
e instructed.

m at 1.5 metres above ground level, using a standard measuring tape as defined by British Standards, unless otherwise

es from the centre of the trunk, at the four cardinal points of a compass, to achieve an accurate representation of the crown
urvey plan.

on is made in terms of its maturity within the site's landscape and defined as:

condition is defined as:

al system showing average vitality i.e. normal bud growth, leaf size, crown density and wound closure

cal system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and

**limited functionality showing significantly below average vitality i.e. limited bud growth, small and chlorotic leaves,
nited wound closure**

tion is defined as:

defects

could be alleviated through remedial tree surgery or management practices

cannot be alleviated through tree surgery or management practices

stancy is defined as: **<10, 10+, 20+ or 40+ years.**

using the recommendations of BS5837:2012. The assessment has not considered any site-specific development changes on or off-site which may have an effect on the conditions surrounding the surveyed trees.

of the following categories (and one or more sub-categories [this will however not increase the value of the tree]) and colourings by colours as indicated.

serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of one tree cannot be mitigated by pruning) and/or are showing signs of significant, immediate, and irreversible overall decline and/or are hosts of pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees and/or are trees of better quality			identification colour on plan DARK RED
1 – Mainly cultural values Especially good examples of their type; or rare or unusual; or those that are remnants of groups or formal or informal cultural features (e.g. the principal trees within an avenue)	2 – Mainly landscape values Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	3 – Mainly cultural values Trees, groups or woodlands, of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	identification colour on plan LIGHT GREEN
1 – Mainly cultural values Included in category A, but are of impaired condition (e.g. significant though remediable defects, or evidence of past management and/or that they are unlikely to be maintained for beyond 40 years; or trees of low quality necessary to merit the inclusion)	2 – Mainly landscape values 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	3 – Mainly cultural values Trees with material conservation value or other cultural value	identification colour on plan MID BLUE
1 – Mainly cultural values Of very limited merit or such that they do not qualify in higher categories	2 – Mainly landscape values 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	3 – Mainly cultural values Trees with no material conservation or other cultural value	identification colour on plan GREY

basic data collection exercise and record of tree condition at the time of survey. This will identify any visible signs of ill-health and require further investigation where appropriate. This will most often take the form of a request for either “*full ground level inspection*” or “*decay detection equipment*” to aid diagnosis. A tree survey does not include a remedial tree works, but may contain a guide to the work which might be undertaken by a prudent tree owner, purely for

Tree Inspection or Arboricultural Implication Assessment, which are totally separate exercises.

	TREE SURVEY REPORT			
	Client:	Wilson House Ltd	Site:	Pine Close, We
	Date:	14 May 2014	Consultant:	Stefan Rose BS
	Tagged:	No	Weather:	Sunny spells, lig

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 that increases the chance of windthrow due to a larger dense crown area; and only receiving restricted light. Unless otherwise stated, in order to 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 in a difficult position.
 3. The estimated remaining contribution in years, and the tree grading category have been calculated for the current situation and may alter with time.
 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 is subject to 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 considered in the context of a full tree assessment.
 7. Any management recommendations are suggested for reasons of health and safety only, regardless of development proposals at this stage. Any tree surgery are by their very nature potential wildlife habitats, including protected species which needs consideration prior to any tree surgery work.
- TREE PRESERVATION ORDER (TPO):
- CBA Trees understand that Trees 1-7 are covered by a Tree Preservation Order issued by Arun District Council - TPO/3/91/AL (see trees annotated on map).

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m)				H't of Crown AGL (m)				Life Stage	Physio-logical Condition	Structural Condition and General Observations
					N	E	S	W	N	E	S	W			
1 TPO	Common Ash <i>Fraxinus excelsior</i>	20	MS <6	700	2.0	8.0	8.0	7.0	3.0	2.0	5.0	4.0	M	Good	Fair Part of linear group High amenity value group Trifurcated at 1m above ground level Previously pollarded above ground level Minor deadwood in crown Old pruning wounds and in crown Minor deadwood in crown Epicormics on trunk and crown

CBA7264_2014-05-14 v1 TS

Tree No	Species	H't (m)	Single/Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m)				H't of Crown AGL (m)				Life Stage	Physiological Condition	Structural Condition and General Observations
					N	E	S	W	N	E	S	W			
2 TPO	Common Sycamore <i>Acer pseudoplatanus</i>	19	MS <6	820	4.0	8.0	3.0	8.0	2.0	3.0	3.0	4.0	M	Good	Fair Trifurcated at 1m above ground level Part of linear group High amenity value group Basal suckers Previously pollarded above ground level Minor deadwood in crown Basal suckers Tight forks with incl
3 TPO	Common Ash <i>Fraxinus excelsior</i>	20	S	780	3.0	8.0	5.0	9.0	6.0	4.0	10.0	4.0	M	Good	Fair Part of linear group High amenity value group Bifurcated at 1.3m above ground level One branch failed at 1.3m Previously pollarded above ground level Old pruning wounds and in crown Minor deadwood in crown
4 TPO	Common Ash <i>Fraxinus excelsior</i>	21	S	990	7.0	8.0	4.0	8.5	6.0	5.0	10.0	7.0	M	Good	Fair Part of linear group High amenity value group Bifurcated at 1m above ground level Previously pollarded above ground level Roots causing damage to footpath Old pruning wounds and in crown Basal suckers

CBA7264_2014-05-14 v1 TS

Tree No	Species	H't (m)	Single/Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m)				H't of Crown AGL (m)				Life Stage	Physiological Condition	Structural Condition and General Observations
					N	E	S	W	N	E	S	W			
5 TPO	Common Ash <i>Fraxinus excelsior</i>	20	S	990	5.0	8.0	3.0	7.0	10.0	5.0	16.0	6.0	M	Good	Fair Part of linear group High amenity value group Bifurcated at 1m ab level Old pruning wound decay at union at b Previously pollarded above ground level Small limbs to West Old pruning wounds and in crown Minor deadwood in Basal suckers
6 TPO	Common Ash <i>Fraxinus excelsior</i>	19	MS <6	430	5.0	6.0	1.0	6.0	12.0	7.0	17.0	6.0	M	Good	Fair Part of linear group High amenity value group Trunk leans North Crown weighted North Crown shape distorted group pressure Poor shape and form Previously pollarded above ground level Tree is of poorer quality than those to South but as part of group Wire occluded in lower limbs Minor deadwood in crown Old pruning wounds and in crown

CBA7264_2014-05-14 v1 TS

Tree No	Species	H't (m)	Single/Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m)				H't of Crown AGL (m)				Life Stage	Physiological Condition	Structural Condition and General Observations
					N	E	S	W	N	E	S	W			
7 TPO	Common Ash <i>Fraxinus excelsior</i>	20	MS <6	430	7.0	7.0	2.0	7.0	5.0	5.0	7.0	5.0	M	Fair	Fair Part of linear group High amenity value Trunk leans North Crown weighted North Crown shape distorted group pressure Bifurcated at ground level Dessicated fungal fruiting (<i>Inonotus hispidus</i>) trunk on East side Previously pollarded above ground level Storm damage in crown Old pruning wounds and in crown Epicormics on trunk crown Basal suckers Poor shape and form Wire occluded in lower
8	Common Ash <i>Fraxinus excelsior</i>	9	MS <6	470	5.0	5.0	6.0	4.0	2.0	1.0	1.0	3.0	EM	Good	Fair Offsite tree Trifurcated at 0.5m ground level Ivy on trunk Old pruning wound Major deadwood in East stem snapped
Grp 1	Common Hawthorn Elm Elder	4	MS	150	-	-	-	-	-	-	-	-	SM	Fair	Fair Boundary line group by ivy and bramble Limited value Poor quality tree Earth works at base side

CBA7264_2014-05-14 v1 TS

4.5m x 70m Siphone

A 29



	BS5837:2012 TREE ROOT PROTECTION AREA			
	Client:	Wilson House Ltd	Site:	Pine
	Date:	14 May 2014	Consultant:	Stefa

Notes:

1. This is an assessment of the Root Protection Area (RPA) required, based on the individual tree data collected and Section 4.6.1 of BS5837:2012.
2. At this juncture this document is for your sole guidance and ongoing discussions purposes only and is not intended for general circulation. It is not to be retained, which clearly may not be the case.
3. For all single stem trees with a stem diameter greater than 1250mm, and multi-stem trees with a stem diameter greater than 1500mm, the RPA shall be determined in accordance with Section 4.6.1 of BS5837:2012.

TREE PRESERVATION ORDER (TPO):

CBA Trees understand that Trees 1-7 are covered by a Tree Preservation Order issued by Arun District Council - TPO/3/91/AL (see tree

Tree No	Species	Category	Single/ Multi-Stemmed (S or MS)	Stem Diameter (mm)	Root
1	Common Ash	C1+2	MS <6	700	
2	Common Sycamore	C1+2	MS <6	820	
3	Common Ash	C1+2	S	780	
4	Common Ash	C1+2	S	990	
5	Common Ash	C1+2	S	990	
6	Common Ash	C2	MS <6	430	
7	Common Ash	C1+2	MS <6	430	
8	Common Ash	C1	MS <6	470	
Grp 1	Common Hawthorn Elm Elder	C2	MS	150	

CBA7264_2014-05-14 v1 RPA



A 50 x 70m Square

A 29





Tree Protection

All trees adjacent to unsupervised work areas have been protected by fencing.

This fencing must be respected at all times and no attempts shall be made to damage, bypass or ignore it.

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.

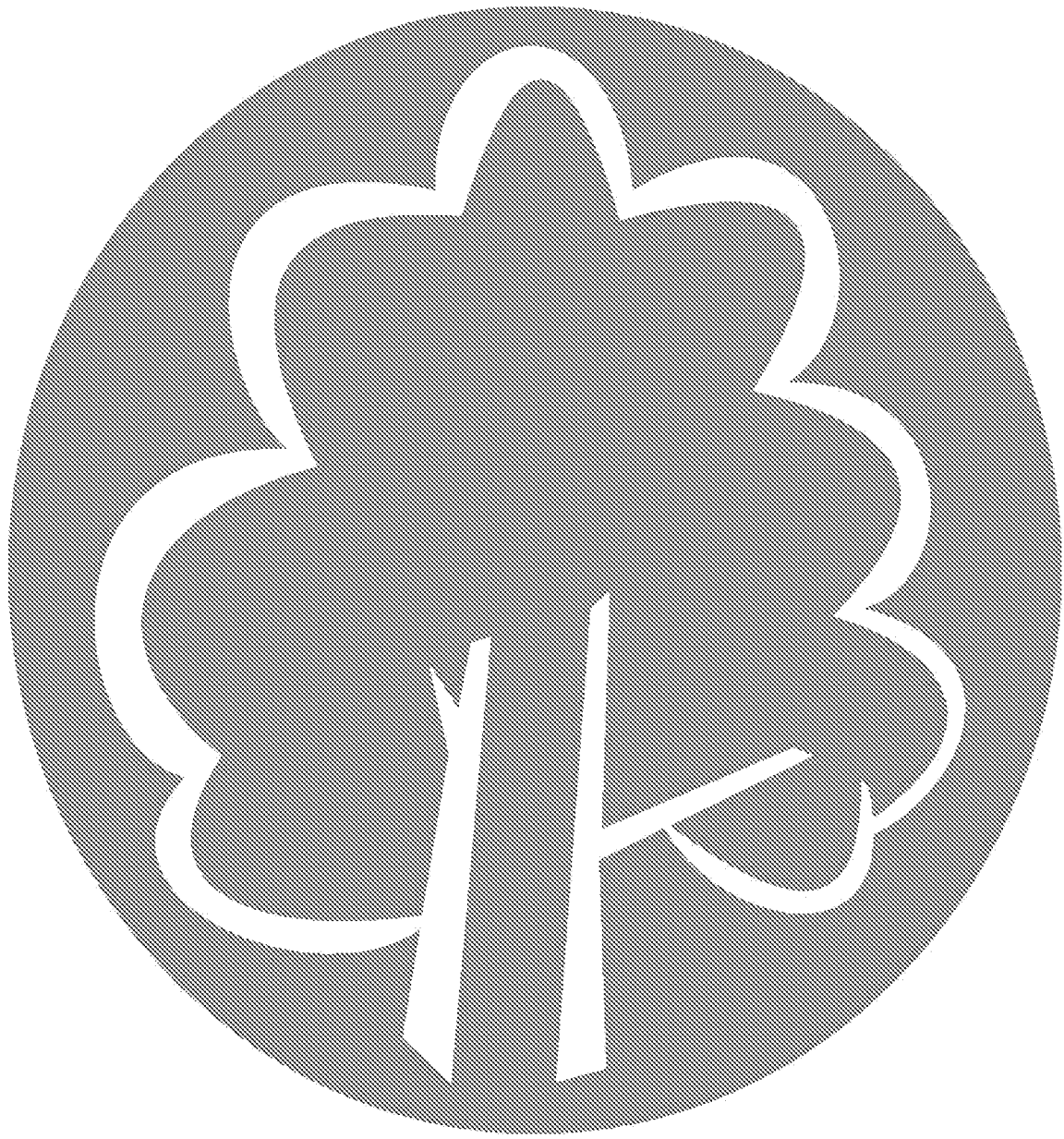
No tree pruning shall be undertaken by demolition or construction personnel.

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:

REMEMBER:

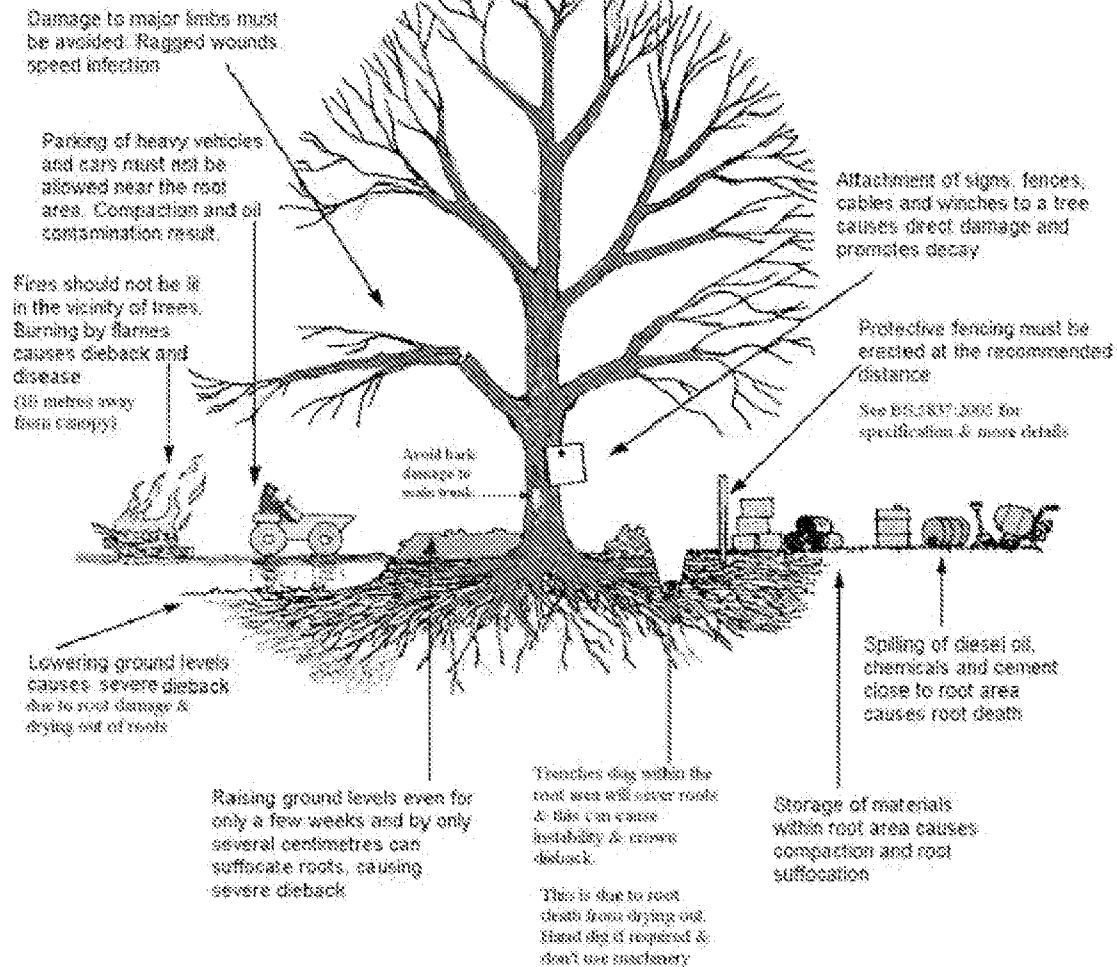
**ALL TREE DAMAGE IS
AVOIDABLE –
SO AVOID IT!**



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

Common causes of Tree Death

The use of properly positioned protective fencing can prevent tree deaths occurring.



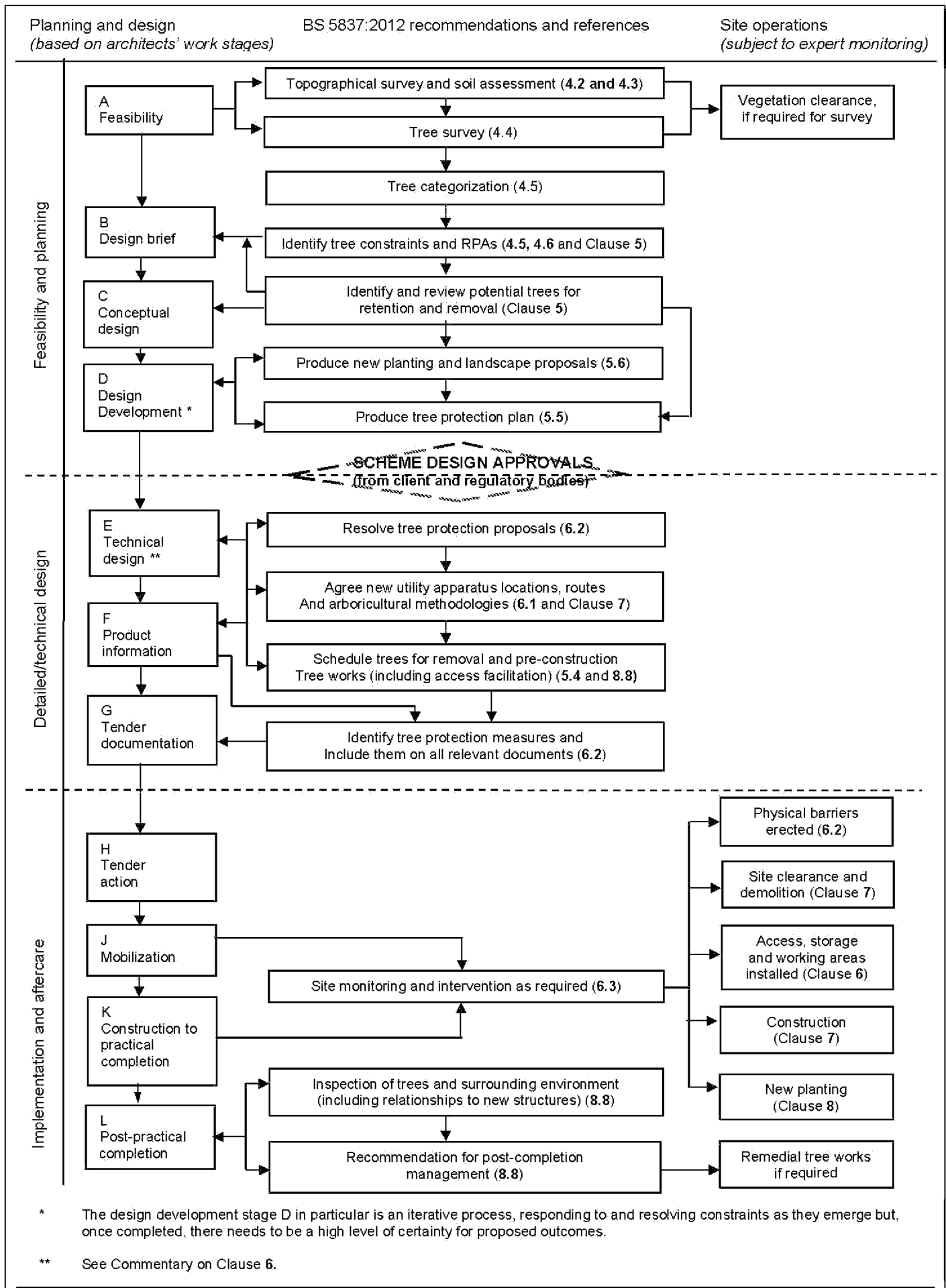
Please use copies of this as an on-site poster for personnel

(Source: Arboricultural Information Exchange website, 2005)

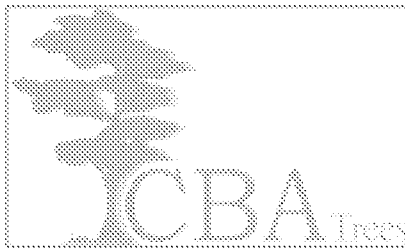




Figure 1 The design and construction process and tree care







**The Professional Arboricultural
Consultancy**

**QUALIFICATIONS OF STEFAN ROSE
SENIOR CONSULTANT
CBA TREES**

Stefan Rose *BSc.Hons. AA Tech.Cert.* joined CBA Trees in 1998, following his studies at Merrist Wood as a junior surveyor/arborist, and has gained experience in almost every field of our work, under the guidance and supervision of the senior consultants.

Stefan has attained the position of Senior Consultant in the practice, and is responsible for the supervision of the more junior members of consultancy and surveying staff. Stefan has undertaken work for Southampton City Council as a locum Tree Officer, and has provided professional assistance to Rushmoor Borough Council in respect of Tree Preservation Orders, as well as working on behalf of his own portfolio of clients.

Stefan has passed the 6 academic modules required to gain the *Dip.Arb (RFS)* and hopes to complete the management modules in the future, to reinforce his senior consultant status.