

March 2009  
CBA7279

J S Bloor (Newbury) Ltd

|                       |       |     |    |
|-----------------------|-------|-----|----|
| ARUN DISTRICT COUNCIL |       |     |    |
| No.                   | A     | 158 | 08 |
| <b>SUPPLEMENTARY</b>  |       |     |    |
| Received              | 6-3-9 |     |    |



*The Complete Professional  
Arboricultural Consultancy*

## ARBORICULTURAL DEVELOPMENT STATEMENT

Station Road  
Angmering

CBA Trees, Apex House, Apex Centre,  
Church Lane, Colden Common,  
Winchester, Hampshire, SO21 1TN.

Tel: 01962 715407 (3 Lines)

Fax: 01962 711419

Email: [info@cbatrees.co.uk](mailto:info@cbatrees.co.uk)

Web: [www.cbatrees.com](http://www.cbatrees.com)



MEMBER  
Company No.  
2045721



VAT No.  
866 4482 12



REGISTRATION  
NUMBER 18005



VCAT/19708



CBA7279

**ARBORICULTURAL DEVELOPMENT STATEMENT**  
**(incorporating Arboricultural Implications Assessment and**  
**Method Statement in accordance with BS5837:2005)**

**Client:** J S Bloor (Newbury) Ltd

**Site:** Station Road, Angmering

**Arboricultural Consultant:** Graham Sear (*Techcert*) Arbor A, ND Arb

**Date:** 3<sup>rd</sup> March 2009

---

**SUMMARY**

The proposal is for the construction of 11 (eleven) dwellings with gardens, car parking and associated driveways and footpaths, at the site of Station Road, Angmering. The Arboricultural Development Statement (ADS) will demonstrate the protection measures for the retained trees.

This Arboricultural Development Statement should be read in association with the Tree Protection Plan CBA7279.03. This plan identifies the individual trees and groups of trees to be removed, and those to be retained. It follows the initial tree survey, implications assessment and on-going discussions to minimise the impact upon the existing tree stock.

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 BS5837:2005, and current best practice.

A total of 3 (three) individual 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.

## Contents

| <u>Section</u>                                       | <u>Title</u>                                                                       | <u>Page<br/>No.</u> |
|------------------------------------------------------|------------------------------------------------------------------------------------|---------------------|
| <b>PART 1</b>                                        |                                                                                    |                     |
| <b>ARBORICULTURAL IMPLICATIONS ASSESSMENT</b>        |                                                                                    |                     |
| 1.0                                                  | INTRODUCTION.....                                                                  | 3                   |
| 2.0                                                  | CLIENT'S BRIEF.....                                                                | 3                   |
| 3.0                                                  | DESCRIPTION OF THE SITE.....                                                       | 4                   |
| 4.0                                                  | THE TREE STOCK.....                                                                | 4                   |
| 5.0                                                  | PROPOSED TREE RETENTION AND TREE LOSS.....                                         | 5                   |
| <b>PART 2</b>                                        |                                                                                    |                     |
| <b>ARBORICULTURAL/CONSTRUCTION METHOD STATEMENTS</b> |                                                                                    |                     |
| 6.0                                                  | PRE-COMMENCEMENT SITE MEETING .....                                                | 8                   |
| 7.0                                                  | PRE-DEVELOPMENT TREE WORKS.....                                                    | 8                   |
| 8.0                                                  | TREE PROTECTION MEASURES .....                                                     | 9                   |
| 9.0                                                  | GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE<br>CONSTRUCTION EXCLUSION ZONE ..... | 11                  |
| 10.0                                                 | REMOVAL OF HARD SURFACES/BUILT FORM IN CLOSE<br>PROXIMITY TO RETAINED TREES.....   | 11                  |
| 11.0                                                 | INSTALLATION OF HARD SURFACES IN CLOSE PROXIMITY TO<br>RE12 .....                  | 12                  |
| 12.0                                                 | PHASING OF DEVELOPMENT .....                                                       | 12                  |
| 13.0                                                 | CONSTRUCTION WORK TIMINGS.....                                                     | 12                  |
| 14.0                                                 | VEHICULAR MOVEMENTS.....                                                           | 12                  |
| 15.0                                                 | SITING OF TEMPORARY OFFICES, TOILETS AND MATERIAL<br>STORAGE COMPOUNDS .....       | 12                  |
| 16.0                                                 | UTILITY SERVICE CONNECTIONS .....                                                  | 13                  |
| 17.0                                                 | SITE MONITORING AND SUPERVISION .....                                              | 13                  |
| 18.0                                                 | AVOIDING DAMAGE TO STEMS AND BRANCHES .....                                        | 14                  |
| 19.0                                                 | REPORT DAMAGE TO TREES AND TREE PROTECTION FENCING .....                           | 14                  |
| 20.0                                                 | REMOVAL OF PROTECTIVE FENCING .....                                                | 14                  |
| 21.0                                                 | COMPLETION MEETING .....                                                           | 15                  |
| 22.0                                                 | FUTURE MANAGEMENT AND POST DEVELOPMENT TREE<br>MANAGEMENT .....                    | 15                  |
| 23.0                                                 | CONCLUSIONS.....                                                                   | 16                  |
| 24.0                                                 | CONTACT LIST .....                                                                 | 16                  |
| 25.0                                                 | BIBLIOGRAPHY .....                                                                 | 16                  |
| <b><u>Supporting Information/Appendices</u></b>      |                                                                                    |                     |
| CB1                                                  | Tree Survey Schedule and Tree Survey Plan CBA7279.01                               |                     |
| CB2                                                  | Root Protection Area Schedule                                                      |                     |
| CB3                                                  | Tree Protection Plan CBA7279.03                                                    |                     |
| <b><u>Guiding Principles/Appendices</u></b>          |                                                                                    |                     |
| 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                                                  | Utilities Service Connection General Method Statement                              |                     |
| CB7                                                  | Qualifications and Experience                                                      |                     |

## **PART 1 ARBORICULTURAL IMPLICATIONS ASSESSMENT**

### **1.0 INTRODUCTION**

- 1.1 There is a development proposal for the site which was previously a garage with hard standing forecourt. The site is located on Station Road, Angmering.
- 1.2 The proposal is for the construction of 11 (eleven) new dwellings of varying layout design, some of which have allocated garages and garden space with associated driveways, car parking and footpaths.
- 1.3 Document disclosure provided:
  - Topographical Site Survey by Tetlow King
  - Structural information provided by Tetlow King
- 1.4 The client 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 section 4.1.5 of BS5837:2005.
- 1.5 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 British Standard 5837:2005 – *"Guide to Trees in Relation to Construction – Recommendations"* 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 (topographical) survey provided by the client. (Plan No.CBA7279.01 appended with the Tree Survey Schedule at CB1).
  - To produce a schedule of Root Protection Areas in accordance with BS5837:2005 Table 2, appended at CB2.
  - To undertake an arboricultural implications assessment (AIA) of the approved 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 (Plan No.CBA7279.03) appended at CB3.

### 3.0 DESCRIPTION OF THE SITE

- 3.1 The site currently consists of an area of compacted ground with sub-base material from previous hard surfacing. The boundaries to the site are to the West the footpath edge, to the North the grassed verge to the footpath and to the South and East garden boundaries. There are no trees located on-site; there are 3 (three) street trees located off-site close to the site boundary.

### 4.0 THE TREE STOCK

- 4.1 A tree survey was undertaken by CBA Trees on 27.2.09. The tree survey exercise identified 3 (three) individual trees; a tree survey schedule and plan (ref CBA7279.01) are appended at CB1.
- 4.2 CBA Trees is unaware that any of the trees subject to the planning application are protected by a Tree Preservation Order. It has not been confirmed by Arun District Council whether any of the trees within the site are also covered by a Conservation Area Order.
- 4.3 The client is advised to obtain written confirmation from Arun District Council, to establish the legal status of these trees prior to any works being undertaken, outside the remit of an approved planning application.
- 4.4 Tree Categorisation Method

**Category R** = 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 0 (zero) 'R' grade trees on or adjacent to the site at the time of surveying.

**Note:**

*"Category R trees are those which would be lost in the short term for reasons connected with their physiological or structural condition. For this reason, they should not be a consideration in the planning process."*

**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 0 (zero) individual 'A' grade tree 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 0 (zero) 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 3 (three) individual 'C' grade trees in total adjacent to the site at the time of surveying. These were trees 1, 2, and 3.

**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."***

- 4.5 The 3 (three) off-site street trees were all graded as 'C' grade trees, and consisted of a Silver Maple which had been pollarded in the past, a Fastigate Hornbeam and an Apple tree. All 3 (three) trees have a considerable amount of hard surfacing within their rooting zones, and have very small areas of soft surfaces to encourage root growth.
- 4.6 For a more details of the existing tree stock, refer to the Tree Survey Schedule (appended at CB1).

## **5.0 PROPOSED TREE RETENTION AND TREE LOSS**

- 5.1 In accordance with the recommendations contained within BS5837:2005 *"Trees in Relation to Construction"*, 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.
- 5.2 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.
- 5.3 As part of the assessment, dimensions have been scaled from the proposed development drawing number PL081005, SL.01 prepared and modified, to include the relevant Tree Survey data and the information as shown on plan number CBA7279.03, appended at CB3.

CBA7279

## 5.4 Summary of the implications for the trees and groups:

| Tree No. | Species            | BS 5837 2005 Cat | Potential cause of harm                                                                                                                                                                                                                                                                                    | Implication                                                                                                                                                                       | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|--------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | Silver Maple       | C1               | <ul style="list-style-type: none"> <li>North-west corner of plot 5 is located approximately 1m by 3.5m in extremity of RPA.</li> <li>Construction in proximity to tree.</li> <li>Hard surfacing located within RPA.</li> <li>Removal of hard surfacing within RPA to form soft landscaped area.</li> </ul> | <ul style="list-style-type: none"> <li>Minor root severance</li> <li>Further ground compaction reduced root function.</li> <li>Root disturbance, reduced root function</li> </ul> | <ul style="list-style-type: none"> <li>Retained arboriculturalist to be present when foundations excavated within RPA. See paragraph 5.5.</li> <li>Ground protection to be installed during construction within RPA. See Tree Protection Plan.</li> <li>Tree protective fencing to be installed during construction and moved back to install new hard surfacing and soft landscaping. See Tree Protection Plan.</li> <li>Hard surfacing utilising existing compacted sub-base.</li> <li>Excavations within RPA done by hand to install soil for soft landscaping. Retained arboriculturalist to be present during any excavations within RPA.</li> </ul> |
| 2        | Fastigate Hornbeam | C1               | <ul style="list-style-type: none"> <li>Removal of hard surfacing within RPA to form soft landscaped area</li> <li>Construction within proximity of tree</li> </ul>                                                                                                                                         | <ul style="list-style-type: none"> <li>Root disturbance, reduced root function</li> </ul>                                                                                         | <ul style="list-style-type: none"> <li>Excavations within RPA done by hand to install soil for soft landscaping. Retained arboriculturalist to be present during any excavations within RPA.</li> <li>Tree protective fencing to be installed during construction and moved back to install new hard surfacing and soft landscaping. See Tree Protection Plan.</li> </ul>                                                                                                                                                                                                                                                                                 |

CBA7279

| Tree No. | Species | BS 5837 2005 Cat | Potential cause of harm                                                                                                                                                                                               | Implication                                                                                 | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|---------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3        | Apple   | C1               | <ul style="list-style-type: none"> <li>• Removal of hard surfacing within RPA to form soft landscaped area</li> <li>• Part of footpath located within RPA</li> <li>• Construction within proximity of tree</li> </ul> | <ul style="list-style-type: none"> <li>• Root disturbance, reduced root function</li> </ul> | <ul style="list-style-type: none"> <li>• Excavations within RPA done by hand to install soil for soft landscaping. Retained arboriculturalist to be present during any excavations within RPA.</li> <li>• Footpath to utilise the existing compacted sub-base.</li> <li>• Tree protective fencing to be installed during construction and moved back to install new hard surfacing and soft landscaping. See Tree Protection Plan.</li> </ul> |

5.5 The North-west corner of plot 5 encroaches approximately 1m by 3.5m in the extremity of Tree 1's Root Protection Area (RPA) (see Tree Protection Plan). This encroachment within the RPA should not be detrimental to the long term health of Tree 1, as the area encroached calculates to around one percent of the total RPA and is also at the extremity of the RPA. The ground is compacted as it was previously the hard standing forecourt of a garage, therefore one would assume that root growth in this direction from the tree would be restricted, due to the large area of unfavourable rooting conditions found, and root growth would be more concentrated to the grassed footpath verge. Given these circumstances, it would be unlikely that any substantial roots are found in the area where the building footprint encroaches within the RPA. As part of the proposals, a soft landscaped area is proposed adjacent to Tree 1, which will encourage root growth and enlarge the existing grassed area. To ensure that no substantial roots are damaged during foundation construction, the retained arboriculturalist should be present to prune any non-substantial roots encountered.

## PART 2 ARBORICULTURAL/CONSTRUCTION METHOD STATEMENTS

### 6.0 PRE-COMMENCEMENT SITE MEETING

#### 6.1 Pre-commencement site meeting

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 tree protection measures prior to commencement of the development and the associated clearance work.

### 7.0 PRE-DEVELOPMENT TREE WORKS

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

7.2 All permitted or approved tree work should be carried out in accordance with the British Standard "*Recommendations for Tree Work*" BS3998:1989, 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.

7.3 With regard to the trees to be retained, if protected by a Tree Preservation Order or within a Conservation Area, 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.

7.4 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. Consideration should also be given to nesting birds, and tree works should not normally be undertaken between March and May; however, care should be taken to inspect trees during the summer months for evidence of nesting birds. 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.

7.5 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.

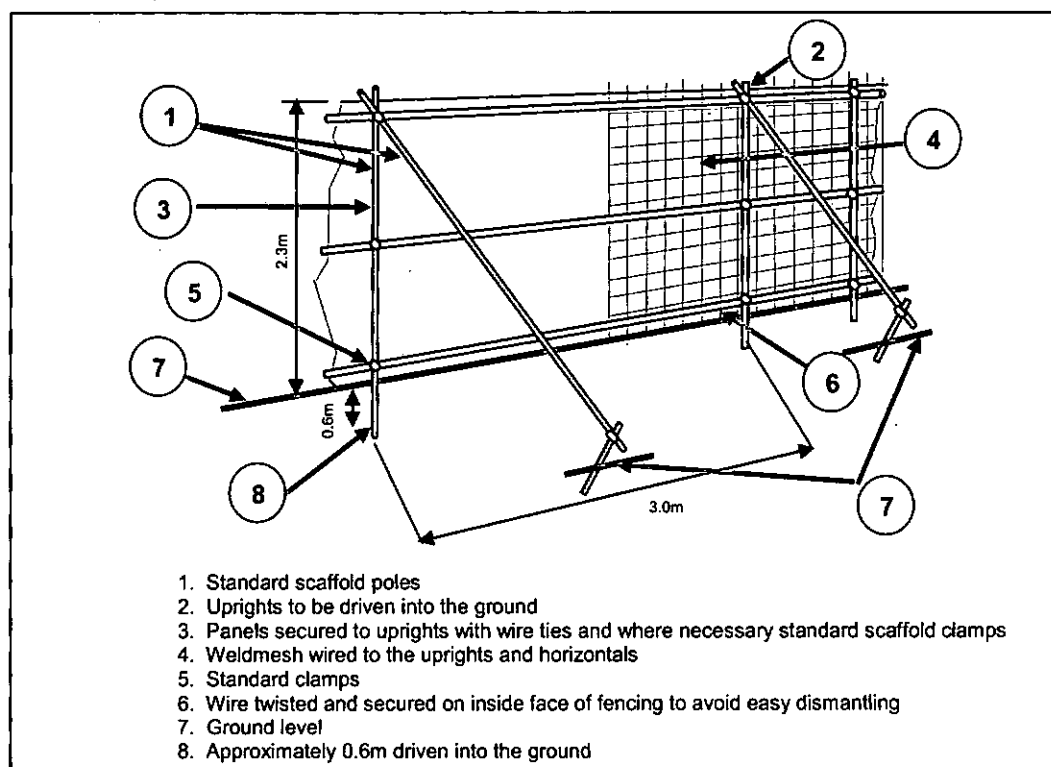
7.6 All tree works that are required to facilitate the development are detailed within the Tree Works Schedule appended at CB4.

## 8.0 TREE PROTECTION MEASURES

### 8.1 Tree Protective Fencing and Tree Protection Plan

- 8.1.1 The protective fencing shall be erected in accordance with the location set out on the Tree Protection plan ref: CBA7279.03, which is appended at CB3, and will be erected prior to any site works. A copy of the Tree Protection Plan shall be made available for all site staff to see.
- 8.1.2 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 will be fixed securely with wire or scaffold clamps (Figure 1 below and figure 2 of BS5837:2005). Weldmesh panels on rubber or concrete feet are not resistant to impact, and should not be used in close proximity to the development

Figure 1: Tree Protective fencing specification



- 8.1.3 Once the fencing is in place it must remain *in-situ* throughout the following phases of the development/construction:

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

- 8.1.4 The area within the Construction Exclusion Zone (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, except where

prior approval has been granted to carry out operations as detailed within this report. See Tree Protection Plan CBA 7279.03.

## 8.2 Additional arboricultural advice for site personnel

8.2.1 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.

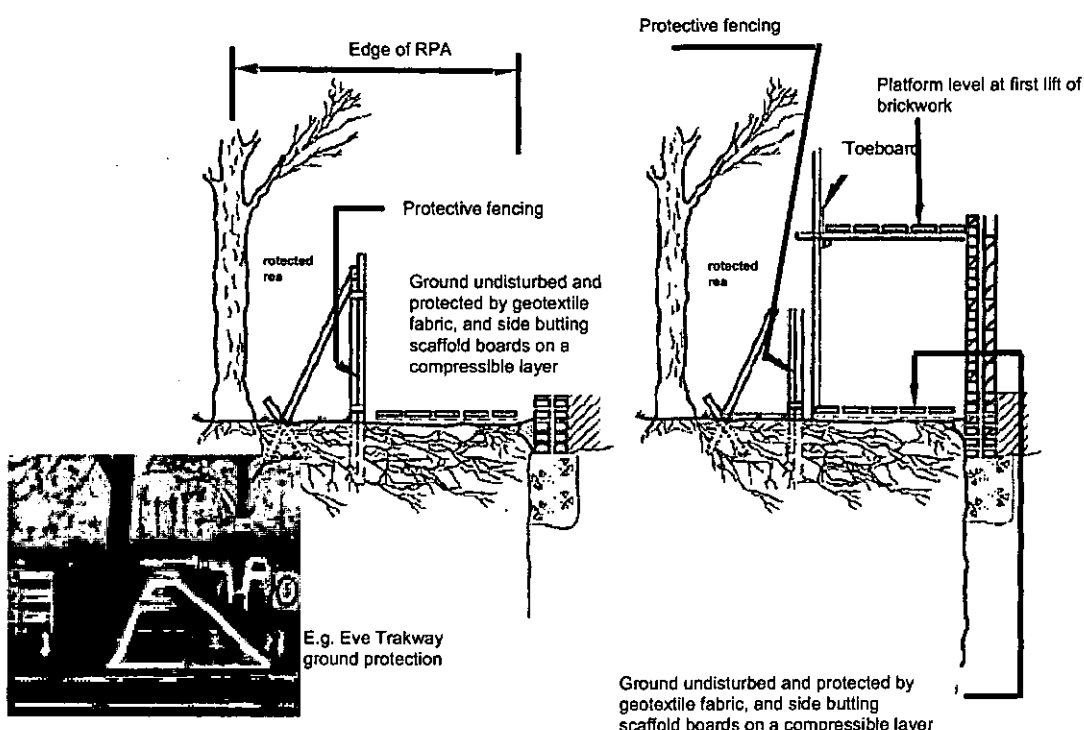
8.2.2 In order to inform site personnel of the purpose of the fencing, information notices shall be fixed to the fencing at 5m intervals. These notices shall be of all-weather construction and shall be substantially in the form of the specimen provided at appendix CB4, and shall be replaced as and when necessary.

## 8.3 Ground protection and scaffolding specification

8.3.1 In addition, ground protection will be implemented, similar to that shown in Figure 3 of BS5837:2005, and illustrated as figure 2 below, for the area within the Root Protection Area, to allow for construction and working space. This is necessary to provide working space for construction activities, which may include implementation of foundations, and for the erection of scaffolding to aid in building. This will also be required when footpaths are installed within the root protection zone.

8.3.2 Additional heavy-duty ground protection may, in some circumstances, be required. This is feasible through the use of concrete slabs or heavy duty boarding (e.g. Eve Trakway) to enable a higher level of ground protection of the tree's rooting area, and to reduce the potential for damage and compaction.

**Figure 2: BS5837:2005 Ground protection and Scaffolding**



### **Pedestrian movements**

Section 9.3.2 *"For pedestrian movements within the RPA, the installation of ground protection in the form of a single thickness of scaffold boards, on top of a compressible layer laid onto a geotextile, or supported by scaffold may be acceptable".*

## **9.0 GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE CONSTRUCTION EXCLUSION ZONE**

### **9.1 Construction Exclusion Zone (CEZ)**

9.1.1 Inside the Construction Exclusion Zone (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.**

9.1.2 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)

## **10.0 REMOVAL OF HARD SURFACES/BUILT FORM IN CLOSE PROXIMITY TO RETAINED TREES**

10.1 Removal of existing surfacing, built forms or other excavations within the Construction Exclusion Zone of retained trees, must be undertaken by hand (where feasible and in line with Health and Safety policies) to avoid any surface root damage, and shall be supervised on-site by the Retained Arboricultural Consultant.

10.2 Any removal of hard surfacing, built form or other excavations in close proximity to trees will be undertaken by working only from the existing hard surface or protected ground area. The required work should then be completed with hand operated tools or appropriate machinery, but under the supervision of an arboriculturist. Any machinery or equipment to be used will need to be lightweight and run on additional ground protection, or working from the existing hard standing only.

10.3 If the area of the zone of protection around the retained trees is to be left following the removal of the existing hard surface, and before a new hard surface

is laid, or the area receives soft landscaping treatment, then ground/tree protection MUST be correctly re-established immediately the hard surface removal work has been completed.

- 10.4 If there is a delay, for whatever reason, and the area that was previously protected by hard surfacing is left exposed awaiting a new surface, a temporary surface must be implemented, and/or Hessian sacking must be placed over any exposed roots.

#### **11.0 INSTALLATION OF HARD SURFACES WITHIN CLOSE PROXIMITY TO RETAINED TREES**

- 11.1 The installation of hard surfacing to form driveways and footpaths within the Root Protection areas of retained trees, where there is an existing compacted sub-base, will utilise the existing to reduce root disturbance. The tree protective fencing will be moved back to a new position to allow space for hard surface installation. Tree protective fencing locations are shown on Tree Protection Plan CBA7279.03. The Existing sub-base should be made level with minimal ground disturbance and resurfaced. This shall be supervised by the retained arboriculturalist.

#### **12.0 PHASING OF DEVELOPMENT**

- 12.1 The process of the development should follow that of Figure 1 of BS5837:2005 (appended at CB5), in addition to any additional site-specific considerations and factors that need to occur, or be implemented in any one phase.

#### **13.0 CONSTRUCTION WORK TIMINGS**

- 13.1 This is for determination by Arun District Council.

#### **14.0 VEHICULAR MOVEMENTS**

- 14.1 There should be minimal vehicular movement in the rooting zone outside the Root Protection zone.
- 14.2 It is not anticipated that there will be a need for excess vehicular movement near the retained trees, given that there are established access areas.

#### **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 and gravel driveway area within the site confines, 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 actual undertaking, 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 Root Protection Areas and avoid areas where 'run off' of chemicals may flow into root protection areas.

### 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.

### 15.4 Material Storage

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

## 16.0 UTILITY SERVICE CONNECTIONS

- 16.1 The following services will avoid the Root Protection Areas of trees and their roots where feasible, given site constraints:

|                                      |                    |
|--------------------------------------|--------------------|
| <i>Foul and surface water drains</i> | <i>Electricity</i> |
| <i>Land drains</i>                   | <i>Telephone</i>   |
| <i>Soakaways</i>                     | <i>Lighting</i>    |
| <i>Gas</i>                           | <i>Signage</i>     |
| <i>Oil</i>                           | <i>Water</i>       |

- 16.2 The location of all new service routes will be outside of the Root Protection Areas of the trees to be retained on-site, to avoid disturbance of tree roots and ensure their healthy retention.
- 16.3 If services must unavoidably be installed within the RPA of retained trees, works will be carried out using trenchless techniques such as moling, laser guided boring and/or in accordance with advice appended at CB6.

## 17.0 SITE MONITORING AND SUPERVISION

- 17.1 On-going arboricultural site monitoring for the duration of the proposed development will be carried out by the retained arboricultural consultant approved by Arun District Council.
- 17.2 This work will be undertaken by a qualified and experienced arboriculturist at pre-determined and agreed time intervals. 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), on-going liaison with all personnel involved in the site development, Arun District Council and its Tree Officer.

### **Examples of when an Arboriculturist would be required on site:**

- ❖ *Inspection of the tree protective fencing*
- ❖ *Any works within the root protection areas of retained trees*

CBA7279

- 17.3 Any defects requiring rectification shall be notified to the Contractor/Site Manager and the client.
- 17.4 In addition, it is proposed that a site logbook 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 Arun District Council if required, to show evidence of site monitoring.

**Example pro-forma**

| Date     | Activity                            | Checked | Comments/<br>damage<br>noted | By whom | Signed | Action<br>taken |
|----------|-------------------------------------|---------|------------------------------|---------|--------|-----------------|
| 13/03/08 | Erection of protective<br>fencing   |         |                              |         |        |                 |
| 20/03/08 | Inspection of protective<br>fencing |         |                              |         |        |                 |

- 17.5 Arun District Council's Tree Officer (or appropriate representative) will have free 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.

**18.0 AVOIDING DAMAGE TO STEMS AND BRANCHES**

- 18.1 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 should be conducted under the supervision of a banksman, in order to ensure adequate clearance from trees is maintained at all times.

**19.0 REPORT DAMAGE TO TREES AND TREE PROTECTION FENCING**

- 19.1 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.
- 19.2 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.

**20.0 REMOVAL OF PROTECTIVE FENCING**

- 20.1 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. For certain operations, such as installation of new hard surfaces utilising the existing sub base and installing soft landscaping on previous hard standing within Root Protection Areas will require the Tree Protective Fencing to be relocated

during site construction. Full details of Tree Protective Fencing location can be found on Tree Protection Plan CBA7279.03

- 20.2 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.

## **21.0 COMPLETION MEETING**

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

## **22.0 FUTURE MANAGEMENT AND POST DEVELOPMENT TREE MANAGEMENT**

- 22.1 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.
- 22.2 At Section 15 of BS5837:2005 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.

### **Section 15 Post development management of BS5837:2005**

#### **15.1 Existing trees**

**15.1.1** *Trees growing on a site before development takes place may, if adversely affected, be in decline over a period of several years before they die. This varies greatly depending on the age, species and condition of the tree, the soil conditions, climate, and the extent of damage incurred during development. A programme of inspections and necessary work for the treatment of symptoms as they develop should be drawn up in conjunction with an arboriculturalist. This programme may include recommendations for frequency of inspection and/or beneficial tree work and should take the form of an arboricultural management plan.*

**15.1.2** *Where the trees in question are protected by planning controls, the planning authority should be informed and any necessary agreements obtained prior to such work.*

**15.1.3** *Prior to handover, following completion of development, the arboriculturalist should look for signs of intolerance to the change in conditions and the effect of the development and any accidental damage to identify the need for further tree works in addition to those originally specified at the beginning of the development process.*

**15.1.4** *An arboriculturalist should consider appropriate cultural operations. These may include irrigation, or measures to enhance the soil structure and organic nitrogen levels in the soil.*

**15.1.5** *Where the development design incorporates the need for active management following the completion of construction works, a tree or landscape management plan should be prepared and a copy supplied to all parties who may have an interest in the future management of the site or parts of it.*

**15.2 New plantings**

*Maintenance of newly planted trees is of particular importance during the critical establishment period, of at least two years and may, where required by planning conditions, be five years or more following planting. A detailed maintenance schedule covering the establishment period should be prepared in conjunction with the landscape design proposals and appropriate arrangements made for its implementation.*

**23.0 CONCLUSIONS**

- 23.1 The development proposals for the construction of 11 (eleven) dwellings with gardens, car parking and associated driveways and footpaths have been assessed broadly in accordance with British Standard 5837:2005 – “*Trees in Relation to Construction – Recommendations*”.
- 23.2 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.
- 23.3 A total of 3 (three) individual trees can be retained within the development as detailed within this report.
- 23.4 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.

**24.0 CONTACT LIST**

- 24.1 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
  - Landscape Architects
  - Arun District Council's Tree Officer
  - Arun District Council's Planning Case Officer
  - Site Supervisor and Foreman
- 24.2 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.

**25.0 BIBLIOGRAPHY**

- British Standard 5837:2005 –  
“*Trees in Relation to Construction – Recommendations*”
- British Standard 3998:1989 –  
“*Recommendations for Tree work*”
- National Joint Utilities Group Publication Volume 4 –

CBA7279

*"Guidelines for the planning, installation and maintenance of utility services in proximity to trees"*

- Wildlife and Countryside Act 1981
- Town and Country Planning Acts







## TREE SURVEY NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2005 and current good arboricultural 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, or immediately above the root flare for multi-stemmed trees, 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       |
| MA | = | middle aged trees |
| M  | = | mature trees      |
| OM | = | over-mature trees |
| V  | = | veteran           |

- 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, 20-40 or >40 years.

### Categorisation of Trees

The category for each tree is assessed using the recommendations of BS5837:2005. 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 R                                                                                                                                        | 1 – Mainly arboricultural values                                                                                                                   | 2 – Mainly landscape values                                                                                                                                             | 3 – Mainly cultural values                                                                                       | Identification colour on plan |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Trees in such a condition that any value would be lost within 10 years or should be removed for reasons of sound arboricultural management        |                                                                                                                                                    |                                                                                                                                                                         |                                                                                                                  | <b>DARK RED</b>               |
| <b>Category A</b><br>Trees of high quality and value: in such a condition as to make a substantial contribution (40 years or more is recommended) | Trees that are a particularly good example of their species, rare or unusual, essential components of groups or of formal or semi-formal features. | Trees, groups or woodlands providing definite screening of views in and out of the site, or softening effect to the locality, or those of particular visual importance. | Trees, groups or woodlands of significant conservation, historical or other value (e.g. veteran or wood-pasture) | <b>LIGHT GREEN</b>            |

| <b>Category B</b>                                                                                                                  |                                                                                                                    |                                                                                                                                                                                                                                                                                |                                                                          | <b>MID BLUE</b> |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------|
| Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years.                       | Trees which might be included in the A category, but are downgraded due to impaired conditions/remediable defects. | Trees, in numbers, that collectively form a distinct landscape feature but are not individually an essential component of a formal or semi-formal feature. These are likely to be trees situated mainly within the site with little visual impact on the surrounding locality. | Trees with clearly identifiable conservation or other cultural benefits. |                 |
| <b>Category C</b>                                                                                                                  |                                                                                                                    |                                                                                                                                                                                                                                                                                |                                                                          | <b>GREY</b>     |
| 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. | Trees not qualifying in higher categories                                                                          | Trees in groups or woodlands without having significant landscape value or offering low or temporary screening value                                                                                                                                                           | Trees with very limited conservation or other cultural benefits          |                 |

Clients are advised that Tree Surveys are a basic data collection exercise and record of tree condition at the time of survey. It 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.

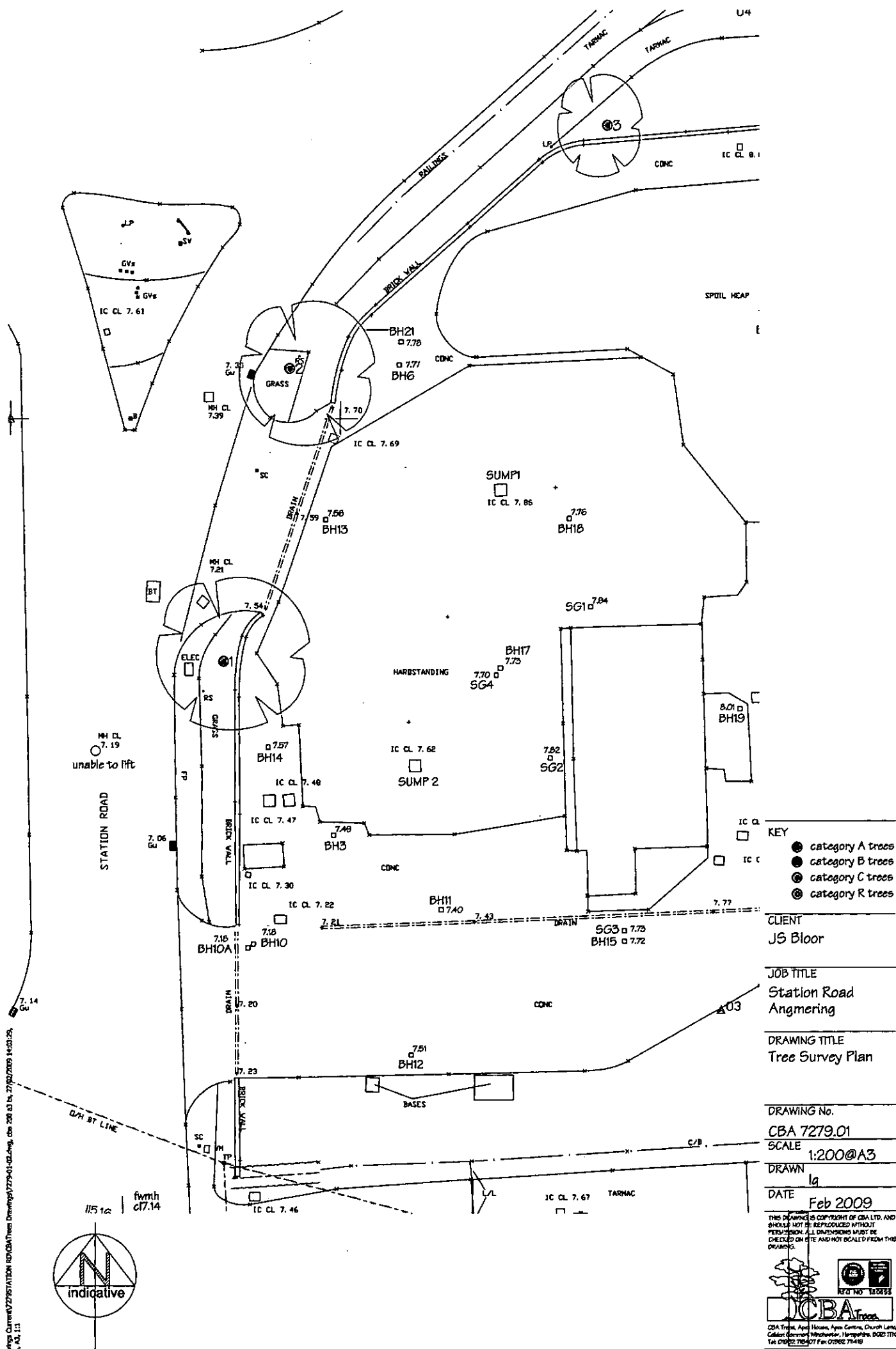
| TREE SURVEY SCHEDULE                                                                |                |                         |                    |                                      |
|-------------------------------------------------------------------------------------|----------------|-------------------------|--------------------|--------------------------------------|
|  | <b>Client:</b> | J S Bloor (Newbury) Ltd | <b>Site:</b>       | Station Road, Angmering              |
|                                                                                     | <b>Date:</b>   | 27 February 2009        | <b>Consultant:</b> | Graham Sear TechCert(Arbor.A),ND Arb |
|                                                                                     | <b>Tagged:</b> | No                      | <b>Weather:</b>    | Slightly overcast                    |

Note:-

1. 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.

| Tree No | Species                                                     | Ht (m) | Single/Multi-Stemmed (S or MS) | Stem Diam (mm) | Branch Spread (m) |     |     |     | Ht of Crown AGL (m) |     |     |     | Age | Physiological Condition | Structural Condition and Relevant Comments                                                                                                                                                                                                                                                                        | Preliminary Management Recommendations | Est. Rem. Contrib. (Yrs) | Cat |
|---------|-------------------------------------------------------------|--------|--------------------------------|----------------|-------------------|-----|-----|-----|---------------------|-----|-----|-----|-----|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------|-----|
|         |                                                             |        |                                |                | N                 | E   | S   | W   | N                   | E   | S   | W   |     |                         |                                                                                                                                                                                                                                                                                                                   |                                        |                          |     |
| 1       | Silver Maple<br><i>Acer saccharinum</i>                     | 11     | S                              | 730            | 5.0               | 4.0 | 4.0 | 4.0 | 2.0                 | 2.0 | 2.0 | 2.0 | M   | Good                    | Fair<br>Off-site tree<br>Basal suckers<br>Epicormics on trunk and in crown<br>Previously pollarded at 2m above ground level<br>Multi-stemmed at 2m above ground level<br>Metalwork occluded in trunk at 1m above ground level on East side<br>Some lower limbs previously pruned back on East side<br>Street tree | None required at time of survey        | 10-20                    | C1  |
| 2       | Fastigate Hornbeam<br><i>Carpinus betulus 'Pyramidalis'</i> | 9      | MS                             | 580            | 4.0               | 5.0 | 4.5 | 3.0 | 1.5                 | 1.5 | 2.0 | 2.0 | M   | Good                    | Fair<br>Off-site tree<br>Mechanical damage to exposed surface roots<br>Multi-stemmed at 1.2m above ground level with included bark<br>Epicormics on trunk<br>Old pruning wounds on trunk and in crown occluding<br>Street tree                                                                                    | None required at time of survey        | 10-20                    | C1  |

| Tree No | Species                   | H't (m) | Single/ Multi-Stemmed (S or MS) | Stem Diam (mm) | Branch Spread (m) |     |     |     | H't of Crown AGL (m) |     |     |     | Age | Physio-logical Condition | Structural Condition and Relevant Comments                                                                                                                                                                                                                         | Preliminary Management Recommendations | Est. Rem. Contrib. (Yrs) | Cat |
|---------|---------------------------|---------|---------------------------------|----------------|-------------------|-----|-----|-----|----------------------|-----|-----|-----|-----|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------|-----|
|         |                           |         |                                 |                | N                 | E   | S   | W   | N                    | E   | S   | W   |     |                          |                                                                                                                                                                                                                                                                    |                                        |                          |     |
| 3       | Apple<br><i>Malus spp</i> | 9       | S                               | 420            | 3.0               | 2.0 | 3.0 | 3.0 | 2.0                  | 2.0 | 2.0 | 2.0 | M   | Fair                     | Fair<br>Off-site tree<br>Street tree<br>Multi-stemmed at 1.7m above ground level<br>Brambles around lower stem<br>Old pruning wounds on trunk and in crown occluding<br>Branches to South previously pruned back<br>Epicormics in crown<br>Minor deadwood in crown | None required at time of survey        | 10-20                    | C1  |



THIS DRAWING IS COPYRIGHT OF GEA LTD. AND  
SHOULD NOT BE REPRODUCED WITHOUT  
PERMISSION. ALL DIMENSIONS MUST BE  
CHECKED ON SITE AND NOT SCALED FROM THE  
DRAWING.



CBA Trees, Apes House, Apes Centre, Church Lane,  
Collett Common Winchester, Hampshire. B021 1TH  
Tel 01962 705407 Fax 01962 71419



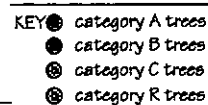
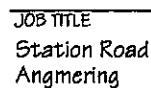
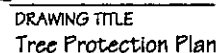
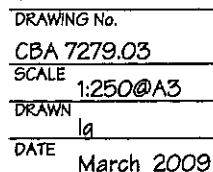
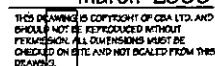
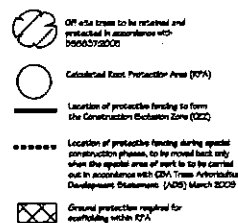
| TREE ROOT PROTECTION AREA SCHEDULE                                                  |                |                         |                                      |
|-------------------------------------------------------------------------------------|----------------|-------------------------|--------------------------------------|
|  | <b>Client:</b> | J S Bloor (Newbury) Ltd | <b>Site:</b>                         |
|                                                                                     | <b>Date:</b>   | 27 February 2009        | <b>Consultant:</b>                   |
|                                                                                     |                |                         | Graham Sear TechCert(Arbor.A),ND Arb |

## Notes:

1. This is an assessment of the Root Protection Area (RPA) required, based on the individual tree data collected and Table 2 of BS5837:2005.
2. At this juncture this document is for your sole guidance and ongoing discussions purposes only and is not intended for general circulation, as it assumes that all but the 'R' trees will be retained, which clearly may not be the case.

| Tree No | Species            | Category | Single/<br>Multi-Stemmed<br>(S or MS) | Stem<br>Diameter<br>(mm) | Initial Linear<br>Root Protection Distance<br>(Radius m) | Root Protection Area<br>(m <sup>2</sup> ) |
|---------|--------------------|----------|---------------------------------------|--------------------------|----------------------------------------------------------|-------------------------------------------|
| 1       | Silver Maple       | C1       | S                                     | 730                      | 8.76                                                     | 241.11                                    |
| 2       | Fastigate Hornbeam | C1       | MS                                    | 580                      | 5.80                                                     | 105.70                                    |
| 3       | Apple              | C1       | S                                     | 420                      | 5.04                                                     | 79.81                                     |

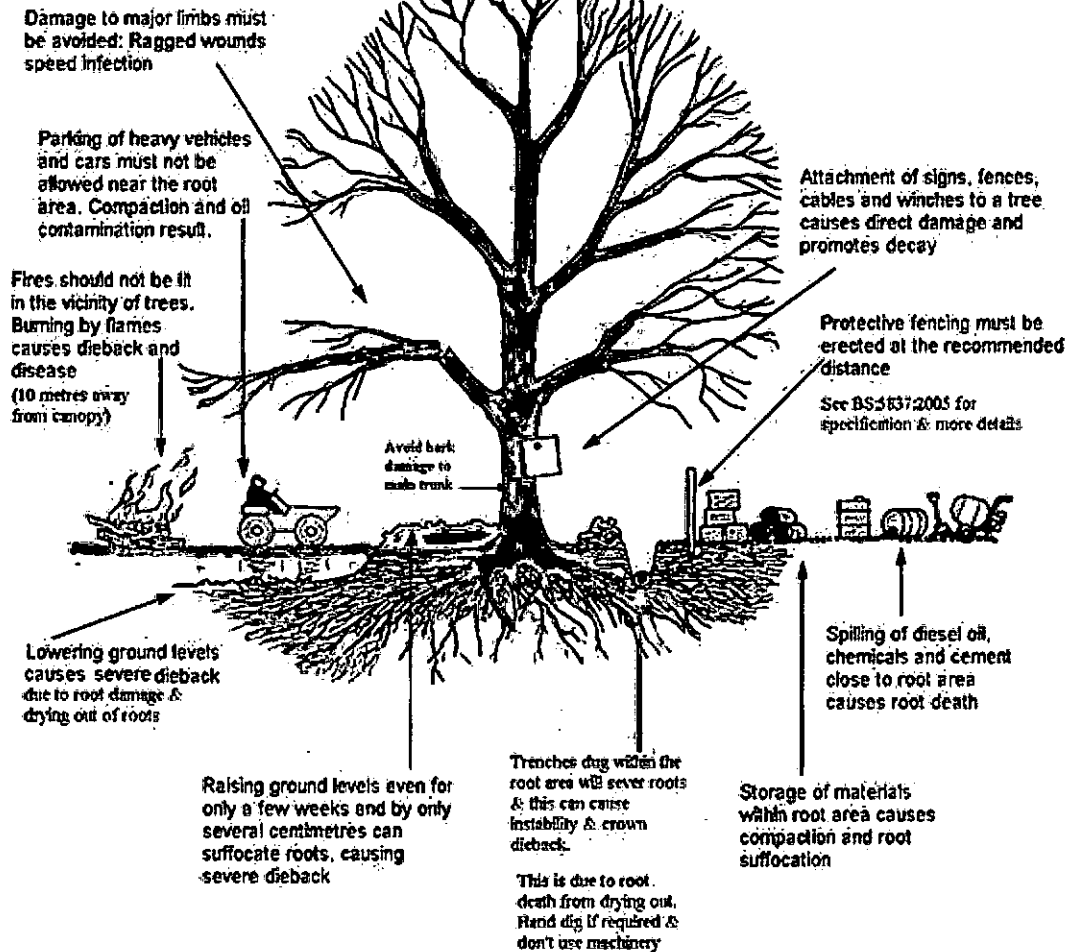






# Common causes of Tree Death

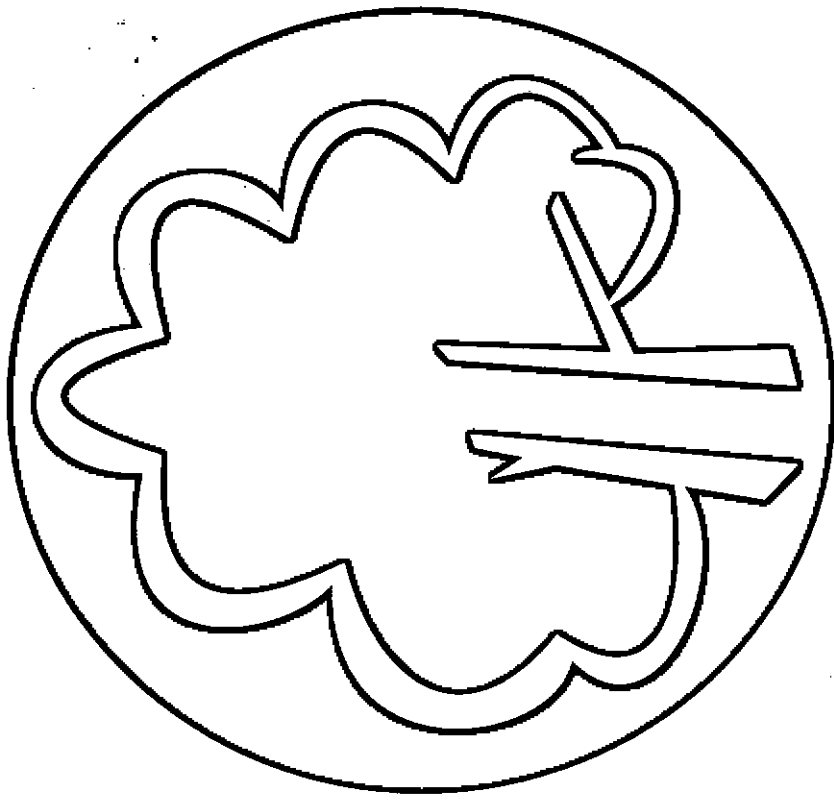
The use of properly positioned protective fencing can prevent tree deaths occurring.



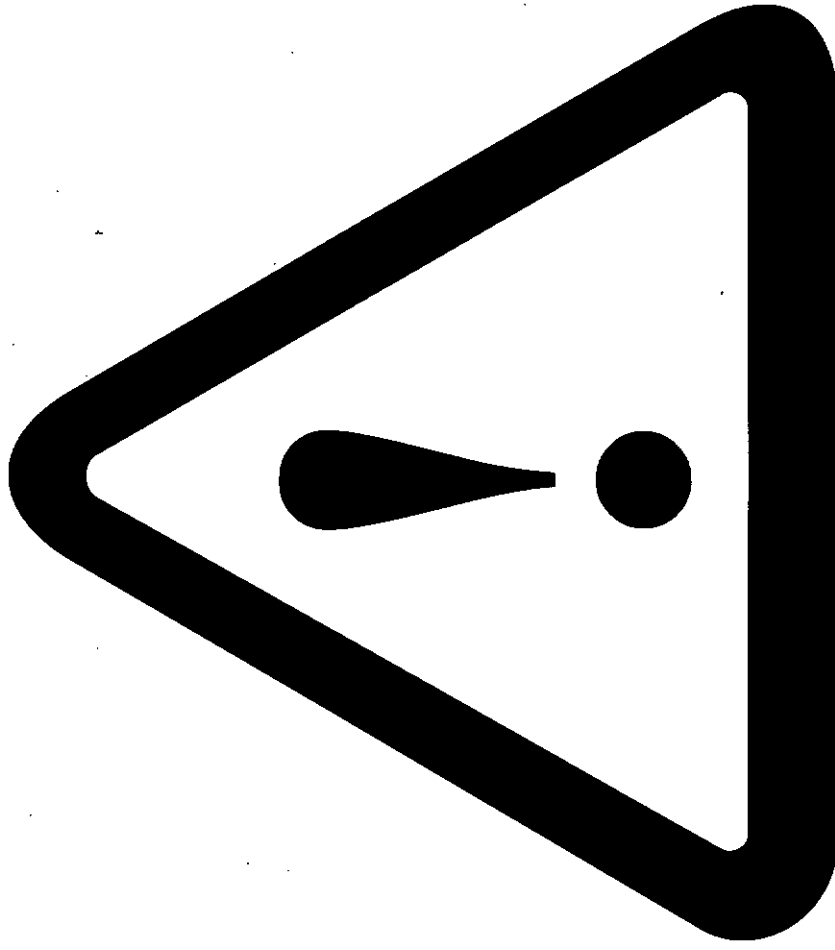
*Please use copies of this as an on-site poster for personnel*

(Source: Arboricultural Information Exchange website, 2005)





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



**TREE PROTECTION AREA  
KEEP OUT !**

(TOWN & COUNTRY PLANNING ACT 1990)

**TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY  
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A  
TREE PRESERVATION ORDER.**

**CONTRAVENTION OF A TREE PRESERVATION ORDER MAY  
LEAD TO CRIMINAL PROSECUTION**

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

## 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 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

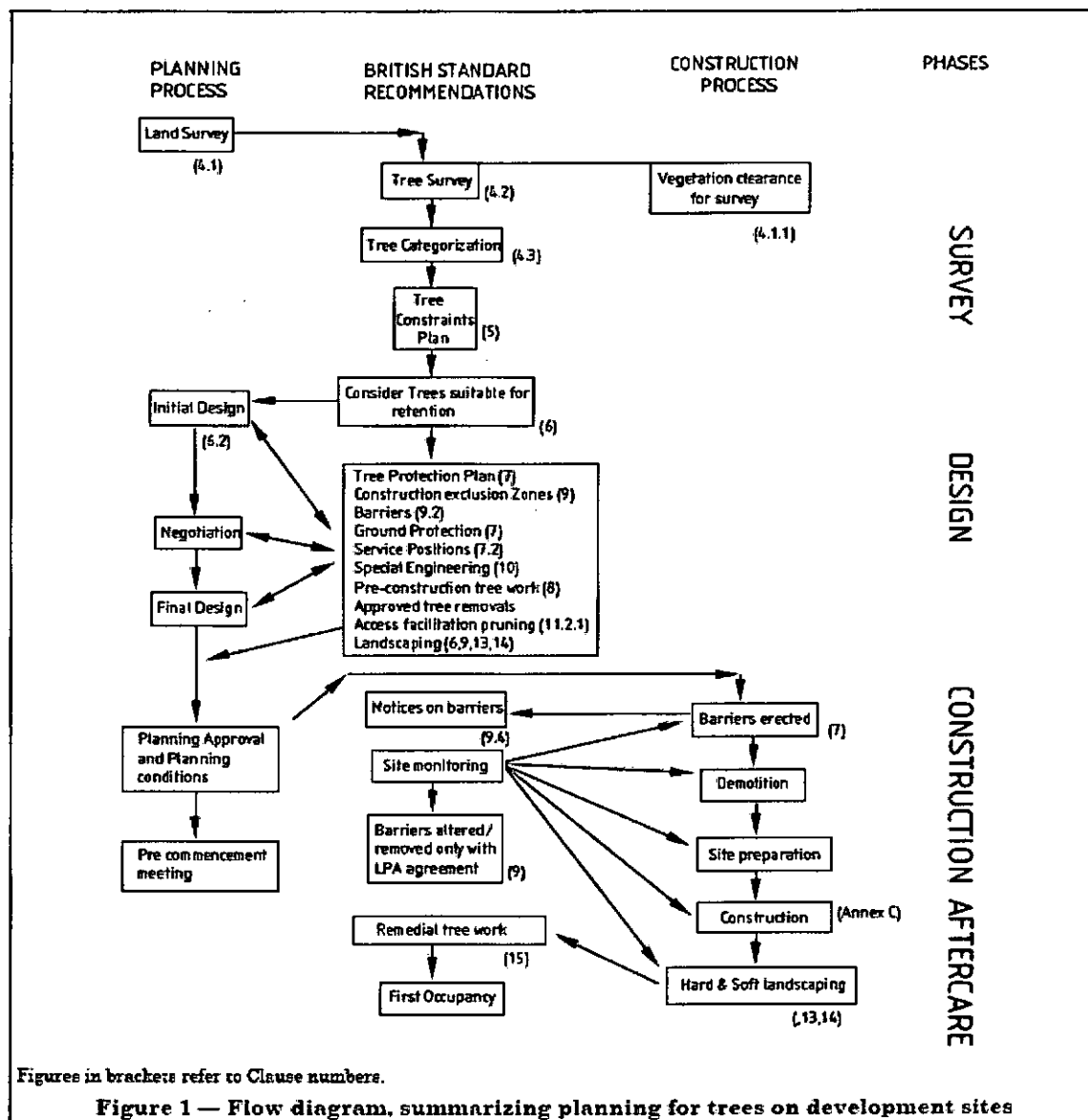
If you see any damage to a tree or its protective fencing, or if you need a tree pruning for plant clearance, contact **CBA Trees** as follows:

Office Telephone: 01962 715407

### REMEMBER:

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





3.2.2 The layout of this standard follows the sequence of the flow diagram in Figure 1. Following the land survey (see 4.1) the existing trees on and adjacent to the site should be surveyed (see 4.2) and categorized (see 4.3). The constraints these trees pose should be plotted on a tree constraints plan (see Clause 5) and those selected for retention should be plotted on a tree protection plan as a result of the negotiations within the design process (see Clause 7). Areas for new landscaping should be identified at this time (see 6.2.2). The position of all excavations and any special engineering required can be specified in the form of arboricultural method statements. Once work is due to begin on site the arboriculturist should meet the site agent at a pre start meeting to ensure the correct erection of barriers and ground protection forming the construction exclusion zone (see Clause 9).





## **UTILITIES SERVICE CONNECTION GENERAL METHOD STATEMENT**

The location of any new service routes will not be within the Root Protection Area of the trees to be retained within and around the site.

Any existing services located within the Root Protection Area of trees to be retained, which require excavation must be done so using a soil pick initially to look for any large roots before proceeding with a mini digger that will be tracked.

All proposed service installations should be carried out in accordance with the guidelines set out in NJUG Publication Volume 4, and Section 11.3.5 and 11.7 of BS5837:2005. Great care should be taken to preserve and work around roots greater than 25mm in diameter, and clusters of smaller roots avoiding damage to bark. Where it is 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.

Backfilling of initial trenches at either end of the proposed service route should be carried out using the excavated soil, which should be worked in around roots and lightly "tamped" not compacted, and respecting the original soil profile. The backfill should be left proud of surrounding levels to allow for settlement.

Trenches must not be left open overnight, and arboricultural supervision is to be provided during excavation of trenches through Root Protection Areas. If the trench is to remain open for any period of time during the day and the weather is hot, to prevent the roots from drying out, it is advised that moist Hessian sacking is wrapped around the exposed roots and/or trench, to prevent such desiccation from occurring or temperature changes. The reason for this is to reduce the potential for root tip death through lack of moisture.

The importance of tree roots is set out below, as per the guidance from within the National Joint Utilities Group Publication Volume 4 (2007).

### **Importance of tree roots**

Tree roots are generally found in the top 600mm of soil, extending radially in any direction for distances frequently in excess of the tree's height. Excavation or other works within this area are liable to damage the roots. They often grow out further than the tree's height. If roots are damaged;

1. **Close to the trunk.** The anchorage and stability of the tree may be adversely affected rendering the tree immediately hazardous.
2. **Anywhere along their length.** The distal portion including the fine roots they serve, will be destroyed. Damage to fine roots by severance of a main root, or by compaction or alteration of ground levels, will prevent fine roots from absorbing the water and nutrients which are essential for the well-being, growth and anchorage of the tree.
3. **By successive excavations.** Multi-utility excavations close to a tree can cumulatively damage a root system.

Even a short distance (3m) from a large mature tree, most roots will be less than 10mm diameter, but these may extend to well beyond the branch spread of the tree. A mass of fine roots, less than 1mm diameter, develop off all parts of this root system. These fine roots absorb the water and nutrients which are essential for the growth of the tree. The main structural roots (close to the trunk); develop as the tree grows in response to the need for the tree to have physical stability.

Beyond these major roots, root growth is influenced by the availability of water, air and nutrients in the soil. Disturbance of soil provides ideal conditions for root growth. Root systems can be damaged by:-

1. **The severance of a root**, for example by trenching will destroy all parts of the root beyond that point. Even roots less than 10mm in diameter may be serving the fine roots over a wide area. The larger the root severed, the greater the impact on the tree.
2. **Damage to the bark on the root**. The bark protects the root from decay, and is also essential for further root growth. It is loosely attached and easily damaged. If damage to the bark extends around the whole circumference, the root beyond that point will be killed.
3. **Compaction of the soil**. Incidental compaction may occur from storage of materials and / or the passing of heavy equipment over the roots. This can restrict or even prevent gaseous diffusion through the soil, and thereby asphyxiate the roots. The roots must have oxygen for survival, growth and effective functioning.
4. **Alterations in soil level**. Lowering the level will strip out the mass of roots near the surface. Raising levels will have the same effect as soil compaction.
5. **The application of herbicide**. Frequently used to clear weed growth on operational land (e.g. substations). The wide-ranging root system of a tree may extend into the operational land and absorb herbicides, which have been applied to the ground. Herbicide absorbed in one part of the root system can kill the whole tree.  
Note: The selection and application of herbicides must be undertaken by a Competent person in accordance with Control of Substances Hazardous to Health (COSHH) regulation.
6. **Spillage of oils or other materials**, (e.g. diesel oil, cement, resins spillage can permeate into the soil and damage root systems.

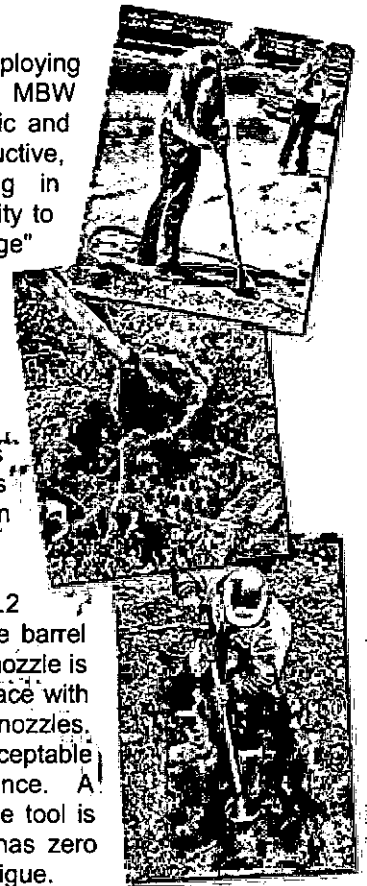
(As per NJUG Volume 4)

## SOIL PICK GUIDANCE

The **Soil Pick** is a selective soil excavator. Selective in the sense that it fractures, pulverizes and displaces porous and semi-porous soils at a high rate of speed, yet leaves non-porous objects unaffected. The Soil Pick excavates soil without risk of damaging buried utilities. The Soil Pick employs converging/diverging nozzle technology to accelerate compressed air to supersonic speed (to 1500 mph). The high velocity air stream travels approximately 4 inches from the distal end of the Soil Pick - "the cutting edge" - before decompressing to atmospheric pressure with sufficient violence to pulverize and displace soil.

What separates the MBW Soil Pick from other excavation tools employing converging/diverging nozzle technology? The answer is safety. MBW holds US and international patents on the combination of dielectric and non-sparking characteristics embodied in the Soil Pick. Non-conductive, non-sparking tools are of obvious benefit to those working in environments that may be gas enriched and/or are in close proximity to live electric lines. The length of a supersonic excavator's "cutting edge" can be shortened or lengthened by changing the configuration of the tool's converging/diverging nozzle. For reasons of safety, MBW has chosen to standardize its cutting edge at approximately 4 inches. A 4" cutting edge is long enough to facilitate rapid excavation, yet short enough to minimize the potential for personal injury caused by misuse and misdirection of the cutting edge. Loosening of soil beyond the area of intended excavation is minimized. Scatter of soil particles, rock and pavement debris is minimized, and the operator is better able to control the air stream when excavating in the immediate area of a gas leak.

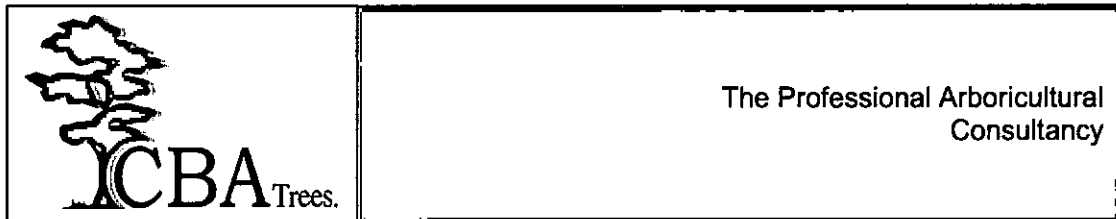
The Soil Pick's non-sparking, brass nozzle is relatively heavy (4.2 ounces). It is imperative that the nozzle does not detach from the barrel assembly to become a high velocity projectile. For this reason, the nozzle is threaded into the barrel assembly and permanently cemented in place with Hydraulic Loctite. Some manufacturers promote easily exchanged nozzles. MBW's view is that easy exchange of nozzles brings with it an unacceptable trade-off in safety. The Soil Pick requires no periodic maintenance. A pressure gauge on the handle assembly advises the operator if the tool is working at acceptable pressure. The Soil Pick weighs 6.5 lbs., has zero hand/arm vibration, and can be used for extended periods without fatigue.



| Specifications                   | MODEL SP-125                      |
|----------------------------------|-----------------------------------|
| Weight                           | 6.5 lb<br>(3 kg)                  |
| Length                           | 52 in<br>(132 cm)                 |
| Barrel Diameter                  | 1.25 in<br>(3 cm)                 |
| Airstream Velocity               | 1475 mph<br>(2375 km/h)           |
| Effective Cutting Depth*         | 4 in<br>(10 cm)                   |
| Air Volume                       | 125 cfm<br>(3540 l/min)           |
| Pressure at tool inlet           | 100 psi<br>(6.9 bar)              |
| Claw Type Quick Connector        | 3/4 in<br>(2 cm)                  |
| Extension Tube                   | 42 in<br>(107 cm)<br>part # 03848 |
| Extension Tube                   | 21 in<br>(53 cm)<br>part # 03849  |
| Cart assembly for crack cleaning | 7.5 in<br>(19 cm)<br>part # 11542 |

\* dependent on soil type (.) Metric Measurements.  
Specifications subject to change without notice.





**QUALIFICATIONS OF GRAHAM SEAR  
SENIOR ARBORICULTURAL SURVEYOR  
CBA TREES**

Graham Sear, *TechCert (Arbor A)*, *ND.Arb*, is a mature surveyor with several years experience in Local Authority work undertaking large street and health and safety audits, as well as tree condition surveys. He joined CBA Trees in November 2005 as a trainee surveyor/consultant, and has become a reliable and conscientious member of the surveying team.

Graham is now undertaking consultancy work on behalf of CBA's clients, including Feasibility Studies, Arboricultural Implications Assessments and Method Statements in accordance with BS5837:2005. Graham has recently completed his studies at Merrist Wood College where he successfully attained the *TechCert(Arbor.A)* qualification with distinction.

It is anticipated that Graham will resume his studies towards Diploma level, within the coming year or so.