

LAND AT
CLIFTON ROAD
DEDDINGTON

ARBORICULTURAL
METHOD
STATEMENT

Prepared by
ACD
ARBORICULTURE

for

ACD

Ecology

Arboriculture

Landscape Architecture



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1. INTRODUCTION

- 1.1. ACD Arboriculture was instructed by Banner Homes, in February 2013, to prepare the following report to ensure protection for all retained trees on the development site at Clifton Road, Deddington. Implementation of the protection methods and other details within this report are integral to achieving this goal.
- 1.2. This Method Statement is to be made available to all operatives on site during the construction process, so that they understand the scope and importance of the measures set out for tree protection. A leaflet is appended for distribution to all site personnel during their site induction.
- 1.3. For details of trees to be retained, and locations and types of special protection methods, reference should be made to the latest revision of Tree Protection Plan (ref: BAN18590-03), which should be displayed prominently on site for all staff to see.
- 1.4. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to. The autocad version of the Tree Protection Plan is available on request.
- 1.5. The information contained within this Arboricultural Method Statement is in line with BS5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.
- 1.6. The controlling authority is Cherwell District Council, who can be contacted at: Planning, Housing and Economy, Bodicote House, Bodicote, Banbury, OX15 4AA.
- 1.7. Any questions relating to the content of this report should be directed in the first instance to: ACD Arboriculture, Courtyard House, Mill Lane, Godalming, Surrey GU7 1EY, 01483 425 714/07796 832 490, quoting the site address and report reference number.
- 1.8. The following abbreviations have been used throughout this document:
 - Root Protection Area – RPA
 - Construction Exclusion Zone- CEZ
 - Tree Protection Plan – TPP
 - Tree Protection Fencing – TPF

2. PHASING OF OPERATIONS FOR TREE PROTECTION

2.1. Implementation of tree protection measures on the site must be carried out in the following order

- 1) Tree removals and access facilitation pruning
- 2) Accurate erection of tree protection measures
- 3) Site accessible to construction/demolition traffic
- 4) Demolition/site clearance
- 5) Construction
- 6) Removal of tree protection fencing; only as plots are completed and ready for sale. To be carried out only after agreement with the Council and project arboriculturist.
- 7) Remedial tree surgery

2.2. The above phasing must not be changed without approval from the project arboriculturist and agreement with the Council.

3. TREE PROTECTION AREAS

3.1. Based on tree survey data, tree protection areas have been determined for every retained tree. These areas are designed to protect at least a functional minimum of tree root mass in order to ensure that the trees survive the construction process.

3.2. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

4. RESTRICTIONS WITHIN TREE PROTECTION AREAS

4.1. Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation whatsoever
- No excavation by any other means without arboricultural site supervision
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant or materials
- No storage or handling of any chemical including cement washings
- No vehicular access
- No fire lighting

4.2. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees
- No fire shall be lit such that flames come within 5m of tree foliage.

5. AVOIDING DAMAGE TO STEMS AND BRANCHES

- 5.1. Care shall be taken when planning site operations in proximity of retained trees 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 can result in serious injury to them and might make their safe retention impossible.
- 5.2. Consequently, any transit or traverse of plant in proximity of trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is at all times maintained. In some circumstances, it may be impossible to achieve this without pruning works known as 'access facilitation pruning'.
- 5.3. Access facilitation pruning shall be kept to the barest minimum necessary to facilitate development and shall be carried out in strict accordance with the guidance below (Tree Surgery). Under no circumstances shall construction personnel undertake any tree pruning operations.

6. TREE PROTECTION FENCING

- 6.1. The Tree Protection Plan (see the latest revision of: BAN18590-03) shows the alignment of Tree Protection Fencing (TPF), which is to be installed prior to any of the following taking place:
 - Demolition
 - Plant and material delivery
 - Soil stripping
 - Utility installation
 - Construction works
 - Landscaping
- 6.2. Stages for installation of TPF:
 - 1) Hand clearance of any vegetation to allow clear working access.
 - 2) Setting out of fencing points
 - 3) Fencing erected
 - 4) Site accessible to demolition/construction traffic
- 6.3. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.
- 6.4. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.
- 6.5. The typical TPF construction is suitable for areas of high intensity development, and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

- 6.6. Should any alternative method of barrier construction be proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.
- 6.7. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.
- 6.8. All weather notices should be erected on the barriers (for example see figure below).



Figure 1: Tree Protection Sign (digital copies available for download at: www.acdarb.co.uk)

7. SITE STORAGE, PARKING, WELFARE FACILITIES ETC.

- 7.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.
- 7.2. No details of these provisions are available at the time of writing of this report.
- 7.3. None of the above provisions will be sited within RPAs of retained trees without the input or the project arboriculturist and the consent of the Local Authority.

8. TREE SURGERY AND REMOVAL

8.1. Those trees which are to be removed are shown with a red dashed canopy outline, and a dashed emblem around the trunk on the Tree Protection Plan ACD reference BAN18590-03.

8.2. The following surgery works are to be carried out:

Tree number	Species	Operation
T11	Beech	Crown lift to 2.5m above ground level over proposed driveway

8.3. If any further surgery works are proposed, it will be submitted to, and approved by Cherwell District Council before being carried out.

8.4. All work will be carried out in accordance with BS 3998:2010 Recommendations for Tree Work, industry best practice and in line with any works already agreed with the Council.

8.5. The tree surgery contractor is responsible for carrying out any relevant health and safety risk assessment, and insurance, prior to any work being carried out.

8.6. The statutory protection afforded by the Wildlife and Countryside Act and Countryside and Rights of Way Act will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.

8.7. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either; cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.

8.8. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

9. SOFT LANDSCAPING IN RPAS

9.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

Turfing

9.2. Stages for turfing gardens and open spaces:

No plant machinery¹ to be used in the area for whatever reason

- 1) Remove TPF to allow access to area.
- 2) Do not reduce any high spots or excavate in any way.
- 3) Existing poor quality turf may be removed with a turf stripper.
- 4) Use good quality top-soil to level any low-lying areas and hollows, and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.
- 5) Import turves by hand in wheelbarrow
- 6) Lay turves

Planting

9.3. Should the soil be compacted or have a poor structure which may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

9.4. Stages for planting within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Remove TPF to allow access to area.
- 2) Remove existing vegetation by hand, turf may be removed using a mechanical turf stripper.
- 3) Do not reduce any high spots or excavate in any way.
- 4) Import good quality top-soil by hand (with wheelbarrow) into area.
- 5) Level to a depth of no more than 100mm with hand tools
- 6) Dig individual planting pits for each plant by hand (including hedging which must not be trench planted)
- 7) Any mulch should also be imported and spread by hand.

9.5. No works will be carried out within any protected areas if the soil moisture is of a level likely to allow compaction to occur.

¹ Including rotovators

10. INSTALLATION OF UNDERGROUND SERVICES

10.1. If for whatever reason installation within RPAs is required the project arboriculturist and local authority must be notified prior to any tree protection barrier removal and the following details adhered to.

10.2. Stages for installing services within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Remove just enough tree protection fencing to allow access to area and facilitate trenching
- 2) Remove any surface vegetation or existing hard surfaces using hand tools
- 3) Using an air-pick excavate the trench, keeping to minimum dimensions required.
- 4) If roots over 10mm diameter are encountered they will be retained, and kept damp by covering with hessian (re-wetted as required)
- 5) Feed in services
- 6) Back fill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported top-soil (to BS3882:1984), firming down with heels
- 7) Repeat step 7 until trench is filled.
- 8) Re-erect tree protection fencing as per approved plan

10.3. The method of excavation above, for trenching within RPA's, is using an 'air-pick' or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. ACD can provide details of contractors supplying Air-pick services if required.

10.4. Alternatively trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

10.5. Reference can be made to National Joint Utilities Group publication Volume 4 (NJUG Vol4) for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

11. INSTALLATION OF NO-DIG ROAD SURFACE

11.1. To ensure that tree roots, within the ground under this proposed surface, continue to survive during and after construction a cellular system such a CellWeb (Geosynthetics Ltd, 01455 617139, www.geosyn.co.uk) of 150mm depth is to be used².

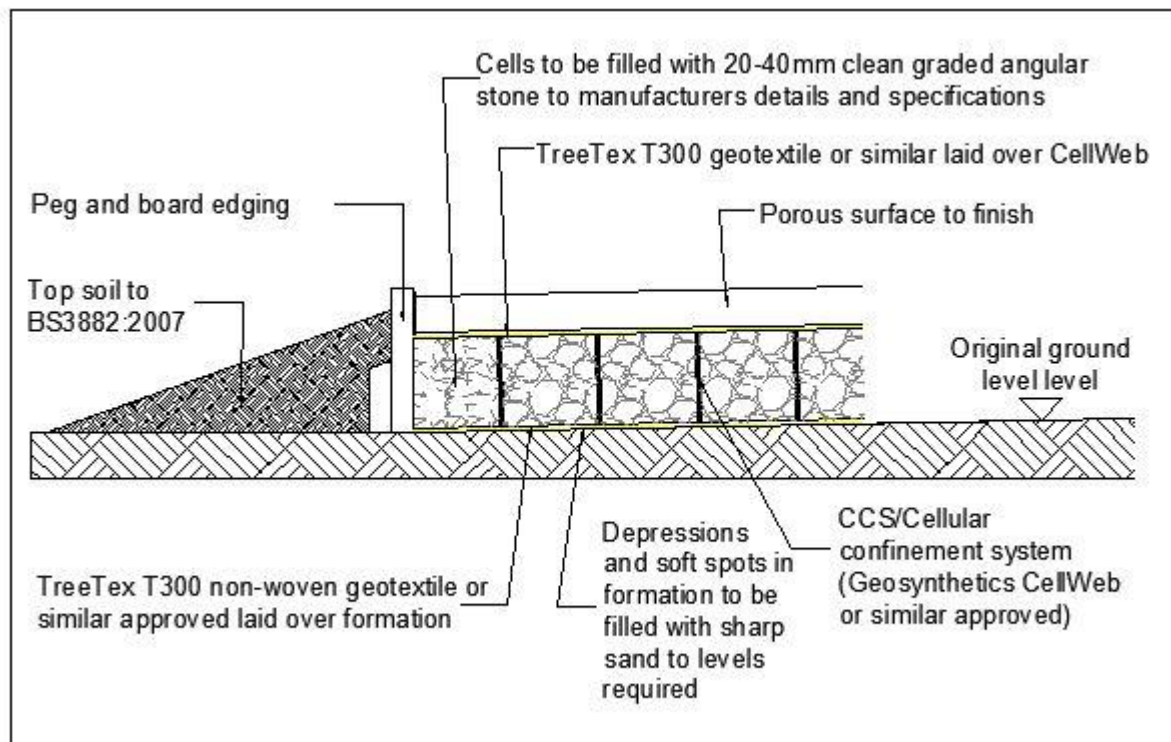


Figure 2: Cellular system profile

11.2. Stages for Installation of the cellular confinement surface:

- 1) Dismantle TPF and re-erect in secondary location as shown on TPP
- 2) Remove existing vegetation by using a specific herbicide (as advised by a specialist) or manual removal with hand tools only. Agreed removal of shrubs, saplings or trees, within the protected areas of retained trees are to be cut, or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees.
- 3) Retain all original ground levels after vegetation removal. No excavation whatsoever.
- 4) Remove any existing hard surfaces (paving, tarmac etc.) Hand tools should be used if possible. If machinery is required for this operation, it must be used only on existing surfaces or outside the protection areas and tree canopies (approval from project arboriculturist must be sought before using machinery). The sub base of existing surfaces or foundations should be left in situ where possible to avoid unnecessary root disturbance and provide a base for the new surface.
- 5) Install a non-woven Geotextile (such as Fibretex F4M) directly over soil grade level (levelled where necessary, by non-compacted washed sand) and fix in place.

²This approach describes installation of a typical no-dig surface. The author of this report is not an engineer and therefore detailed engineering design and analysis must be carried out before installation.

- 6) Lay the cellular system over the Geotextile, which is secured open under tension during the infill process with steel staples or wooden pegs.
- 7) Install kerbs and edgings directly on top of existing soil grade level. For light structures, a treated peg and board may be acceptable. For more substantial structures, railway sleepers, haunched concrete with road pins, drilled kerbstones, gabions or cast in situ kerbs will be appropriate.
- 8) Fill the cellular system ensuring any machinery works only on already filled areas. Typical infill consists of no fines angular granular material 20-40mm, which will remain un-compacted.
- 9) Install porous wearing surface.
 - Small Block Paving
 - Lay a second layer of Geotextile separation fabric over the infill.
 - Lay a sharp sand-bedding layer to recommended depth.
 - Place block paviors as per manufacturer's instructions.
 - Washed Gravel
 - Place second layer of Geotextile separation fabric over the filled cellular confinement system.
 - Place pea shingle/ gravel to required depth.
 - Porous Asphalt

11.3. Any variation to the above specification must meet the following design criteria for low-invasive surfaces to provide the conditions for continued tree survival and growth:

- Maintain oxygen diffusion through new surface to rooting area (5-12% by volume³)
- Maintain sufficient passage of water to the rooting area (12-40% by volume⁴)
- Maintain existing ground levels to avoid root damage (severance and/or asphyxiation)
- Avoid compaction by maintaining a soil structure sufficient to sustain root growth (soil bulk density below 1.4g/cc⁵)

11.4. Site analysis of the soil type and its structural characteristics will be required prior to determining the specific depth of products to be adopted for example, footpaths normally require a depth of 100mm and, 150mm to 200mm depths are used for residential driveways, while greater depths may be required for the passage of heavier traffic such as for construction access and delivery vehicles.

11.5. If ground levels are to be raised more than 150mm this should be achieved by the use of a granular material, which does not inhibit vertical gaseous diffusion. For example: no-fines gravel, washed aggregate, structural soil (min. 20% sand content) or cobbles.

³ Tree Roots in the Built Environment 2006, Roberts Jackson Smith HSO

⁴ Tree Root Growth Requirements, Dr Kim. D. Coder, University of Georgia. July 2000

⁵ Arboriculture, Tree Management of Shade Trees and Vines 2004, Harris, Clarke, Matheny

12. INSTALLATION OF BOUNDARY FENCING WITHIN PROTECTED AREAS

12.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove TPF to allow access to area.
- 3) Dig post holes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
- 4) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
- 5) Line hole with non porous lining, for example durable polythene bag.
- 6) Insert post and fill post hole with concrete to ground level.
- 7) Trim polythene to ground level

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03 March 2014

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