16.20.011 B

Land of Chapel Lane, Gorsley, Ross-on-Wye, Herefordshire

Proposed 7No Dwellings

Tree Protection Plan
Plan in accordance with BS 5837

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Contents

Introduction

Coombes Everitt architects have been instructed to prepare the following report by the current owner of the site MR C HEAD

This Arboricultural Method Statement has been complied to ensure the safe and healthy retention of all trees to be retained on this development. Integral to achieving this goal is the implementation of the special construction details and protection methods detailed within this report.

This Method Statement must be made available to all contractors and operatives on the site during the construction process so that they fully understand the importance of the measures set out for tree protection.

The information contained within this Arboricultural Method Statement conforms to BS 5837:2005 'Trees in relation to Construction – Recommendations'.

The controlling authority is Herefordshire Council.

For details of trees to be retained and the locations and types of special protection methods, reference should be made to the Tree Protection Plan.

It should be noted that this is a site-specific Arboricultural Method Statement produced solely for the physical protection of those trees identified on the above plan and is not relevant to any other site or situation.

This report has been compiled from data achieved by Tree report prepared previously and formed part of the planning approval

1.0 Sequence of Events

1.1 The following sequences are governed by operational constraints and subject to change. The developers arboriculturalist must be noted of any changes to this schedule:

Pre-development Stage

- Pre-commencement site meeting between Local Planning Authority, client and developers architect. This meeting must take place before any development activity begins to confirm the timing and implementation of the agreed Tree Works and installation of Tree protection measures.
- Removal of tree directly/indirectly impacted by development.
- Pruning of tree directly/indirectly impacted by development:

Removal of dead wood from all trees (and aerial investigation).

- Tree protection measures installed to both trees.
- Site to be inspected by developer's arboriculturalist.

Development Stage

- This stage is subject to site monitoring visits by the developers arboriculturalist at intervals as agreed at the pre-commencement site meeting. These visits are to ensure that the agreed protection measures are functional and correctly achieving their purpose.
- Site accessible to demolition and construction traffic.

Development

- Removal of Protective Fencing as agreed by the developers arboriculturalist.
- Landscape operatives to be briefed by project arboriculturalist. Hard and soft landscaping implemented.
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1.2 Arboricultural supervision is to be carried out at all crucial stages throughout the development process to ensure detailed tasks are carried out as per the approved methodology. At points as detailed in section 1.1 and during:

- Any demolition of existing buildings near to trees or within RPA's.
- Any incursion into CEZ's for whatever reason.

1.3 This supervision will require the arboriculturalist to be present throughout the tasks, to ensure all the arboricultural objectives are met.

1.4 If the task is to take a long period of time, provided the arboriculturalist is satisfied, the supervisionmay be reduced to telephone contact between the site Project Manager and the arboriculturalist.

1.5 The local authority arboriculturalist will have free access to the site and pass any recommendationsdirect to the developers arboriculturalist.

1.6 Any alterations to the Protective Fencing should be approved by the developers arboriculturalist and Local Authority arboriculturalist.

2.0 Root Protection Areas

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

2.2 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.

3.0 Restrictions within Tree Protection Areas

3.1 Inside the exclusion area of the Protective Fencing, the following shall apply:

- No mechanical excavation
- No excavation by any other means without arboricultural site supervision.
- No hand digging without a written method statement having first been approved by the developers arboriculturalist.
- No ground level changes whatsoever.
- No storage of plant or materials.
- No storage or handling of any chemicals.
- No vehicular access.

4.0 Tree Protection Fencing

4.1 The Tree Protection Plan (TPP) shows the position of the Tree Protection Fencing (TPF). This fencing comprises of one type as detailed below. Vertical banners should be erected and ground protection installed before any materials or machinery are brought onto site and before any demolition, development or stripping of soil commences.

4.2 Once erected, barriers and ground protection will be regarded as sacrosanct, and will not be removed or altered without prior agreement of an arboriculturalist and approval of the local planning authority.

4.3 Barriers should be fit for the purpose of excluding constructive activity, and appropriate to the degree and proximity of work taking place around the retained tree. On all sites, special attention should be paid to ensuring that barriers remain rigid and complete.

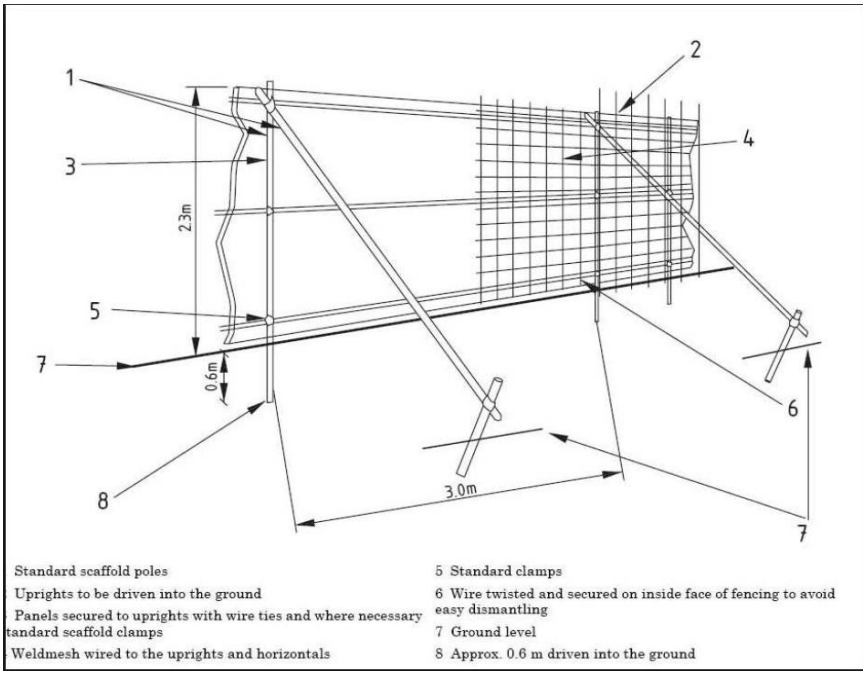
4.4 In most cases, barriers should consist of a scaffold framework in accordance with Fig. 2 comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet are not resistant to impact and should not be used.

4.5 Should any alternative method of barrier construction be proposed, consultation with the developers arboriculturalist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

4.6 Once the exclusion zone has been protected by barriers and/or ground protection, construction can commence. All weather notices should be fixed to the barriers with the words: 'Construction exclusion zone – Keep out' or similar.

Fig 1.
Example of Tree Protection Warning Sign.

Fig 2.
Protective Barrier



5.0 Ground Protection

5.1 Any ground protection to be installed in locations shown on the TPP must be strong enough to support any predicted load and resist compaction and soil damage.

5.2 The primary method of protecting the ground when erecting scaffolding within RPA's is by installing geotextile fabric and side butting scaffolding boards on a compressible layer such as bark chippings on a geotextile membrane.

5.3 The scaffolding may be erected first with the uprights placed on spreader boards and the ground protection installed around the uprights.

5.4 The boarding will be left in place until the building works are finished.

5.5 A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground, protection should be designed by the project engineer to accommodate the likely loading and may involve the use of proprietary systems such as three-dimensional cellular confinement systems and approved for use by the developers arboriculturalist and local authority before any works start.

5.6 The ground beneath any protection boarding will be left undisturbed and will be protected with a porous geotextile fabric. If necessary, sand should be laid on the fabric to level the ground.

Fig 3.

Scaffolding within the RPA

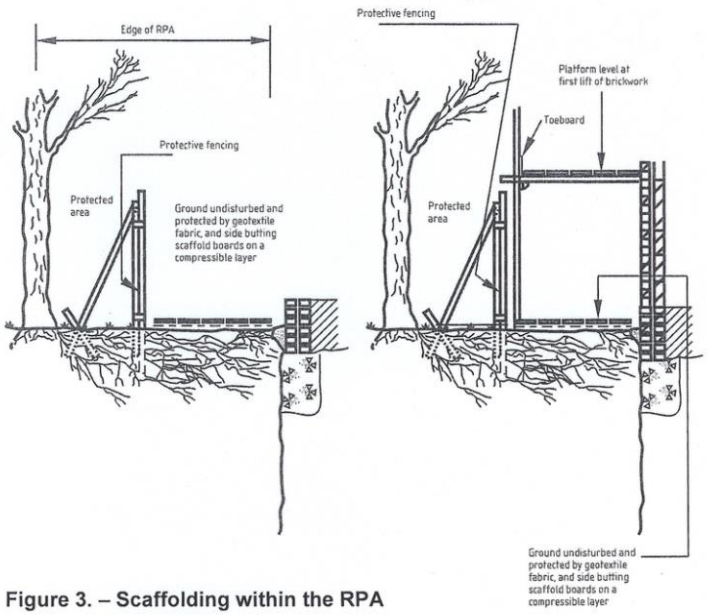


Figure 3. – Scaffolding within the RPA

6.0 Avoiding Crown and Stem Damage

6.1 Great care must be exercised when working close to retained trees. Plant and machinery with booms, jobs and counterweights and the passage of tall or wide loads etc. Should be controlled by a bank mans to maintain adequate clearance.

6.2 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 circumstance shall construction personnel undertake any tree pruning operations.

7.0 Tree Surgery

7.0 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.

8.0 Hard Surface Removal within Root Protection Areas (RPA)

8.1 The initial 'breaking up' of any surface may be carried out by low impact pneumatic tools (not breakers attached to diggers or JCB's, unless required due to the nature of the surface and if so, only when agreed with the supervising arboriculturalist), or by hand if possible.

8.2 Removal of the surface will occur in 2m strips working from undisturbed surface. This will enable any roots exposed to be covered with a good quality top soil to avoid desiccation and the ground to be 'made good' as the operation progresses, avoiding the need for excessive travel on exposed ground.

8.3 Where practical subsequent removal of debris will be carried out by hand. Should be mechanical means be required due to the size of the debris, then a small (1.5 ton) digger may be used providing that, when picking up the debris, no tines/teeth from the bucket cause any damage to the underlying soil surface. Once left with manageable size pieces, hand removal will be used, where the digger is employed, it will only travel on the undisturbed hard surface (within the RPA), clearing debris as it progresses out of the RPA.

8.4 No reduction in levels of the underlying soil surface will occur.

8.5 The underlying soil may be levelled by the addition of up to 100mm of good quality top soil to BS 3882: 1984. Hand tools only will be used for any levelling works; this work will not disturb the underlying soil.

8.6 Should any roots over 25mm diameter, have grown above the final soil level and be a hindrance to the final surface installation, their removal will only be carried out under arboricultural supervision and with the approval of the Local Planning Authority.

8.7 If the area around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid or soft landscaping implemented, then the line of protective fencing must be correctly re-established immediately after the hard surface removal work has been completed.

8.8 If, for whatever reason there is a delay before the area is left exposed prior to awaiting a new surface, then a temporary surface must be implemented or the area fenced off.

8.9 Some construction with regards to the car parking spaces will be required within the RPA of the

trees. This will be carried out employing the no dig method and the construction will be cell web based with resin bonded gravel top surface.

9.0 Installation of Underground Services

9.1 Every effort has been made to ensure the routeing of services does not encroach into RPA's, if for whatever reason installation within RPA's is required, the developers arboriculturalist and local authority must be notified prior to any tree protection barrier removal and the following details adhered to.

9.2 Trenching for the installation of underground services severs any roots present and may change the local soil hydrology in a way that adversely affected the health of the tree. For this reason, particular care will be taken in the routeing and methods of excavation used. At all times where services are to pass within the Root Protection Area, detailed plans showing the proposed routeing will be drawn up in conjunction with an arboriculturalist. Such plans will also show the levels and access space needed for installing the services.

9.3 The preferable method for trenching within RPA's to avoid damage is via excavation using 'airspade'or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage. This approach should be utilised whenever possible.

9.4 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 RPA's of the subject trees, the need for arboricultural supervision is limited.

9.5 Reference can be made to National Joint Utilities Group Volume 4, Issue 2 for guidance, but any approach must be approved by the developers arboriculturalist and brought to the attention of the local authority tree officer.

Appendix 1. Development notes.

BS5837: 2005 states:

In order to avoid disturbances to the physical protection forming the construction exclusion zone once it is

installed, it is essential to consider, make allowances for and plan all construction operations which will be

undertaken in the vicinity of the trees, in particular:

a) Site construction access;

b) The intensity and nature of the construction activity;

c) Contractor's car parking;

d) Phasing of construction works;

e) The space needed for all foundation excavations and construction works;

f) The availability of special construction techniques;

g) The location and space needed for all service runs including foul and surface water drains, land drains, soakaways, gas, oil, water, electricity, telephone, television or other communication cables;

h) All changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls and back fillings;

i) Spaces for cranes, plant, scaffolding and access during works;

j) Space for site huts, temporary latrines (including their drainage) and other temporary structures;

k) The type and extent of landscape works which will be needed within the protected areas and the effects these will have on the root system;

l) Space for storing (whether temporary or long-term) materials, spoil and fuel and the mixing of cement and concrete;

m) The effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.

Appendix 2 - BS 5837: 2005 - Types of hard surfaces and their suitability in proximity to trees

General

If a hard surface is proposed above the granular material, a permeable and gas-porous finished surface (wearing course) should be installed. In some situations, consideration should be given to constructing the final surface prior to the main building works, so as to provide protection for the roots at subsequent stages. However, it may be desirable to protect the final surface from drainage with a temporary covering.

Washed gravel

Washed gravel retains its porosity unless excessively consolidated and is particularly useful where changes of level occur or an irregular shape is needed around the stem of a tree. Gravel is easily renewed or topped up. Although weeds may become established, they can be controlled by chemical or mechanical means. However, gravel is rarely suitable for use where there is vehicle or pedestrian traffic for example, in residential areas. Materials with a high fines content, such as binding gravels or hoggin, should not be used due to their almost impermeable texture when consolidated.

Paving slabs and block pavers

Paving slabs and block pavers are available with built in infiltration spaces between the slabs or blocks. These are ideal, though they should be laid dry-jointed on a sharp sand foundation to allow air and moisture to penetrate to the rooting area.

In situ concrete

As in situ concrete forms an impermeable surface, falls and openings should be provided for water and air to enter the soil. This can be achieved by forming 50mm diameter holes in the construction of a slab at regular spacing's of 300-600mm (as determined by an engineer) and back-filling the resulting holes with no-fines gravel or aggregate. A high standard of material and workmanship is needed if frost damaged and excessive wear are to be avoided.

Bitumen paving

Bitumen paving can consist of porous or impermeable material. As the interstices in unsealed tar paving will eventually become blocked by silt, all such paving should be laid following the same principles as those for impermeable surfaces. Its use within the RPA should, therefore, be restricted to the following parameters: new impermeable surfacing within the RPA should be restricted to a maximum width of 3m and situated tangentially to one side of a tree only or confined to an area no greater than 20% of the RPA whichever is smaller.

Edge supports

The excavation needed for the placement of kerbs, edgings and their associated foundations and

haunching's can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.

For example, where kerbing is required for light structures, such as footpaths, peg and board edging may be acceptable. For more substantial structures, such as estate roads, railway sleepers may be acceptable, retained in place with track pins or road pins. In some situations, for example where the roadway needs to traverse a lateral slope, gabions could be used to provide a kerbing solution (in this example, the gabions are installed on the down-hill side of the road). Gabions can be inter-linked or pinned in place. Where it is necessary to pin kerbing in place, the pins should, where practical, be located clear of any major tree roots visible on the surface.