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Arboricultural Method Statement

17-19 Eaststoke Avenue, Hayling Island

Prepared by
Barrie Draper BTEC HNDFor TechCert(ArborA) CertArb(RFS)

Date: 3 June 2008

Ref: 8216-AMS-BD

1 INTRODUCTION

1.1 **Instruction:** I am instructed by Ms Alyson Griffin & Mr Graham Sullivan to provide an arboricultural method statement regarding the protection and management of one tree at 17-19 Eastoke Avenue, Hayling Island

1.2 **Purpose:** This arboricultural method statement is a reference document that draws together all the information relevant to tree protection and management of the tree on site. A copy must be available on site throughout the development process as a quick reference for managing tree issues. In the event of any dispute over compliance with planning conditions, this document will be one of the main references used in the enforcement process.

1.3 **Terms of reference:** This document has evolved from an original idea described by O'Callaghan & Lawson set out in *Trees and Development Conflicts: The Importance of Advance Planning and Site Control in Tree Preservation Plans* (Trees and Building Sites – ISA – 1995). It is based on the assumption that the minimum general standards for development issues are those set out in British Standards Institution (2005) BS 5837: *Trees in relation to construction – Recommendations* and the National Joint Utilities Group (2007) Volume 4, Issue 1: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.* We have used our arboricultural expertise to interpret these references in the context of evolving good practice and the specific circumstances on this site.

1.4 **Plan based information:** All plans in this document are derived from the following provided information:

- Land survey, drawing JB2002/1091-Eastoke Ave\Land Survey.dwg, received by email on 2 June 2008
- Layout, drawing number 02 Rev A, received by email on 3 June 2008

Plan BT1 in Appendix 1 is illustrative and should only be used for dealing with the tree issues. All measurements derived from it must be checked against the original submission documents. The precise location of all protective measures must be confirmed at the pre-commencement meeting before any demolition or construction activity starts. The plan shows the locations of the proposed protective measures.

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2 TREE PROTECTION ISSUES AND SPECIFICATIONS

2.1 Tree protection with barriers and ground protection

2.1.1 **Barriers:** Illustrative guidance for barrier design based on BS 5837 recommendations is included as Appendix 2. The a[redacted]he RPAs is illustrated on plan BT1 as set out [redacted]he barriers must be agreed with the council on site before any development activity starts.

2.1.2 **Ground protection:** Any RPAs outside the protective barriers must be covered in ground protection based on the BS 5837 recommendations, until there is no risk of damage from demolition and/or construction activity. An illustrative specification for this ground protection is included as Appendix 3 and this must be installed before any construction starts. [redacted]

2.2 **Precautions when working in RPAs:** Any work in RPAs must be done with care as set out in Appendix 4. On this site, special precautions must be taken near tree 1, as illustrated on plan BT1 and summarised below:

1. **Installation of new surfacing:** [redacted]tivity. Any adverse impact must be minimised by following the guidance set out in Appendix 4. Illustrative specifications for special surfacing are included as Appendix 5.

2. **Installation of new services or upgrading of existing services:** It is often difficult to clearly establish the detail of services until the construction is in progress. Where possible, it is proposed to use the existing services into the site and keep all new services outside RPAs. However, where existing services within RPAs require upgrading or new services have to be installed in RPAs, great care must be taken to minimise any disturbance. Trenchless installation should be the preferred option but if that is not feasible, any excavation must be carried out by hand according to the guidelines in Appendix 4. If services do need to be installed within RPAs, written approval must be obtained from the council before any works are carried out.

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2.3 **Other tree-related site works**

2.3.1 **Tree work recommendations:** Tree work proposals based on my preliminary inspection are set out in the tree schedule in Appendix 6. The location of each tree is shown on plan BT1.

2.3.2 **Site storage, cement mixing and washing points:** All site storage areas, cement mixing and washing points for equipment and vehicles must be outside RPAs unless otherwise agreed with the council. Where there is a risk of polluted water run off into RPAs, heavy-duty plastic sheeting and sandbags must be used to contain spillages and prevent contamination.

2.4 **Programme of tree protection and supervision**

2.4.1 **Overview:** Tree protection cannot be reliably implemented without arboricultural input. The nature and extent of that input varies according to the complexity of the issues and the resources available on site. For this site, I have set out a summary of the level of arboricultural input that is likely to be required in Appendix 7. An arboricultural consultant must be instructed to work within this framework to oversee the implementation of the protective measures and management proposals set out in this arboricultural method statement.

2.4.2 **Supervision and the discharge of planning conditions:** Arboricultural planning conditions cannot be reliably or effectively discharged without supervision by an arboricultural consultant. The framework in Appendix 7 must form the basis for the discharge of planning conditions through site visits by an arboricultural consultant. These supervisory actions must be confirmed by formal letters circulated to all relevant parties, including the council. These permanent records of each site visit will accumulate to provide the proof of compliance and allow conditions to be discharged as the development progresses. The developer must instruct an arboricultural consultant to comply with the supervision requirements set out in this document before any work begins on site.

2.4.3 **Phasing of arboricultural input:** Trees can only be properly budgeted for and factored into the developing work programmes if the overall project management takes full account of tree issues as soon as consent is given. An arboricultural consultant must be involved in the following phases of detailed site planning:

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1. **Administrative preparation before work starts on site:** It is normal for a development proposal to vary considerably from the expectations before consent as the detail of implementation evolves. The early instruction of an arboricultural consultant ensures that tree issues are factored into the complexities of site management and can often help ease site pressures through creative approaches to tree protection. Pre-commencement discussions between the arboricultural consultant and the developer's team is an effective means of project managing the tree issues to maximise site efficiency within often difficult constraints.

2. **Pre-commencement site visit:** A pre-commencement meeting must be held on site before any of the demolition or construction work begins. This must be attended by the site manager, the arboricultural consultant and a council representative. If a council representative is not present, the arboricultural consultant must inform the council in writing of the details of the meeting. All tree protection measures detailed in this document must be fully discussed so that all aspects of their implementation and sequencing are understood by all the parties. Any clarifications or modifications to the consented details must be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection will be agreed and finalised by all parties, which will then form the basis of any supervision arrangements between the arboricultural consultant and the developer.

3. **Site supervision:** Once the site is active, the arboricultural consultant must visit at an interval agreed at the pre-commencement site meeting. The supervision arrangement must be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with developer and council to ensure that appropriate protective measures are in place before any works start on site. Once the site is working, that role will switch to monitoring compliance with arboricultural conditions and advising on any tree problems that arise.

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2.4.4 **Site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents must be kept on site at all times and the site manager must brief all personnel who could have an impact on trees on the specific tree protection requirements. This must be a part of the site induction procedures and written into appropriate site management documents.

Barrie Draper **BTEC HNDFor TechCert(ArborA) CertArb(RFS)**

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Appendix 1: Plan BT1 illustrating tree protection and management proposals

Content: 1 A3 plan

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Appendix 2: Illustrative guidance for tree protective barriers

Illustrative specification for barriers near trees according to BS 5837 (2005) recommendations. **Note:** The final design must be site specific and detailed by an appropriately qualified expert.



Heras fencing wired to scaffold braced posts



Board specification on secure wooden posts

Explanatory notes

1 Barriers should be installed at the location illustrated on the Barrell Tree Consultancy plan and agreed as acceptable in writing by the council before any site works start that could affect protected trees.
2 All uprights should be fixed in position for the duration of the development activity as either scaffold tubes or wooden posts banged or dug into the ground and braced sufficiently to withstand the pressures of everyday site work.
3 The framework supported by the uprights must be suitable for firmly attaching either heras panels or heavy duty ply in a way that will not allow the facing to be easily moved.
4 Minimum barrier height is 2.3m unless otherwise agreed with council.
5 Inside the protective barriers, the following rules must be strictly observed:
- No vehicular access
- No fires
- No storage of excavated debris, building materials or fuels
- No mixing of cement
- No service installation or excavation without written consent of council
- No excessive cultivation for landscape planting

6 No barriers should be moved or temporarily dismantled without the written permission of the council.
7 Barrier condition to be regularly monitored to ensure it remains effective.

Recommendations taken from Figure 2 of BS 5837

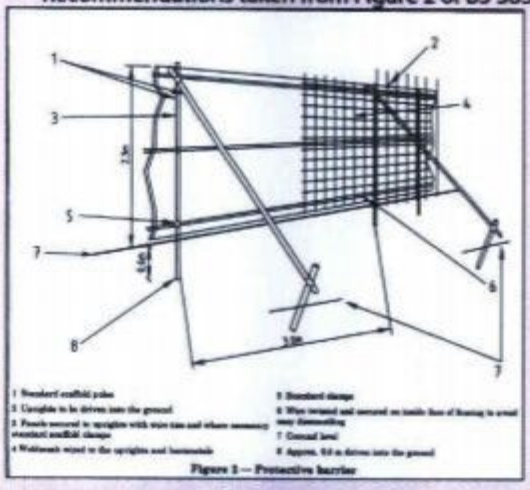


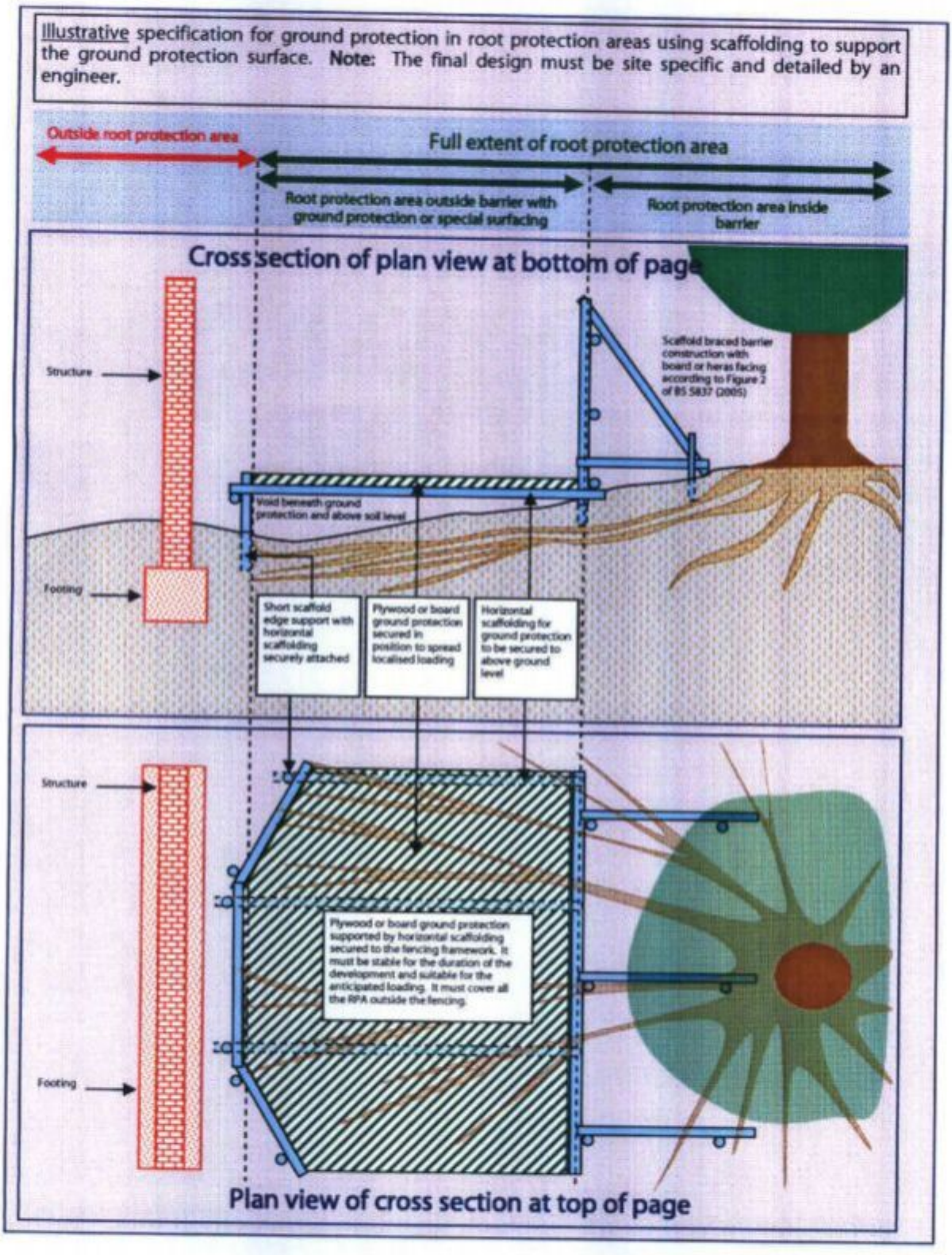
Figure 2 — Protective barrier

Close up of bracing detail



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Appendix 3: Illustrative specification for ground protection in RPAs



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Appendix 4: Site guidance for working in root protection areas (RPAs)

1 GENERAL GUIDANCE FOR WORKING IN RPAs

1.1 **What is the purpose of this guidance?** This guidance sets out the general principles that must be followed when working in RPAs. Where more detail is required, it will be supplemented by illustrative specifications in other appendices in this document. Before work starts on site, the purpose of this guidance is to demonstrate to the council that tree protection issues have been properly considered and to provide a written record of how they will be implemented. Once the site works start, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in RPAs must be properly briefed about their responsibilities towards important trees based on this guidance.

1.2 **What are RPAs?** RPAs are the areas surrounding important trees where disturbance must be minimised if they are to be successfully retained. All RPAs close to the construction area are illustrated on the tree protection plans accompanying this guidance. Damage to roots or degradation of the soil through compaction and/or excavation within RPAs is likely to cause serious damage. Any work operations within RPAs must be carried out with great care if trees are to be successfully retained.

1.3 **When should this guidance be followed?** Anyone entering a RPA must follow this guidance if important trees are to remain unharmed. Anyone working in a RPA must take care to minimise excavation into existing soil levels and limit any fill or covering that may adversely affect soil permeability. There are two main scenarios where this guidance must be followed when entering and working within a RPA:

1. Removal of existing surfacing/structures and replacement with new surfacing, structures and/or landscaping.
2. Preparation and installation of new surfacing, structures and/or landscaping.

Broad definitions of surfacing, structures and landscaping are set out in the following sections.

1.4 **Where does this guidance apply?** This guidance should always be read in conjunction with the site plans illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and intended to be interpreted in the context of the site conditions when the work is started. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the appropriate supervising officer before any demolition or construction work starts.

1.5 **What references is this guidance based on?** This guidance is based on the assumption that the minimum general standards for development issues are those set out in British Standards Institution (2005) BS 5837: *Trees in relation to construction – Recommendations* and National Joint Utilities Group (1995) Publication Number 10: *Guidelines for the planning, installation and maintenance of utility services in proximity to trees.* It is interpreted in the context of our experience of managing trees on development sites.

1.6 **Preventing adverse impact to the RPA beyond the immediate work area:** Any part of the RPA beyond the agreed work area must be isolated from the work operations by protective barriers or ground protection to at least the minimum standard described in BS 5837 for the duration of the work.

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Appendix 4: Site guidance for working in root protection areas (RPAs)

1.7 **Excavation and dealing with roots:** All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of smaller roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage. If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots to be removed should be cut cleanly with a sharp saw or secateurs 10–20cm behind the final face of the excavation. Roots temporarily exposed must be protected from direct sunlight, drying out and extremes of temperature by appropriate covering. Roots greater than 2.5cm in diameter should be retained where possible. Roots 2.5–10cm in diameter should only be cut in exceptional circumstances. Roots greater than 10cm in diameter should only be cut after consultation with the appropriate supervisory officer.

1.8 **Arboricultural supervision:** Any work within RPAs requires a high level of care. Qualified arboricultural supervision is essential to minimise the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any work starts. Ongoing work must be inspected regularly and, on completion, the work must be signed off by the arboriculturist to confirm compliance by the contractor. In the context of this guidance, an appropriate supervising officer would normally be an arboriculturist.

2 REMOVING SURFACING/STRUCTURES IN RPAs

2.1 **Definitions of surfacing and structures:** For the purposes of this guidance, the following broad definitions apply:

- **Surfacing:** Any hard surfacing used as a vehicular road, parking or pedestrian path including tarmac, solid stone, crushed stone, compacted aggregate, concrete and timber decking. This does not include compacted soil with no hard covering.
- **Structures:** Any man-made structure above or below ground including service pipes, walls, gate piers, buildings and foundations. Typically, this would include drainage structures, car-ports, bin stores and concrete slabs that support buildings.

2.2 **Access:** Roots frequently grow adjacent to and beneath existing surfacing/structures so great care is needed during access and demolition. Damage can occur through physical disturbance of roots and/or the compaction of soil around them from the weight of machinery or repeated pedestrian passage. This is not generally a problem whilst surfacing/structures are in place because they spread the load on the soil beneath and further protective measures are not normally necessary. However, once they are removed and the soil below is newly exposed, damage to roots becomes an issue and the following guidance must be observed:

1. No vehicular or repeated pedestrian access into RPAs unless on existing hard surfacing or custom designed ground protection.
2. Regular vehicular and pedestrian access routes must be protected from compaction with temporary ground protection as set out in BS 5837.
3. RPAs exposed by the work must be protected as set out in BS 5837 until there is no risk of damage from the development activity.

2.3 **Removal:** Removing existing surfacing/structures is a high-risk activity for any adjacent roots and the following guidance must be observed:

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Appendix 4: Site guidance for working in root protection areas (RPAs)

1. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a handsaw must also be available to deal with any exposed roots that have to be cut.
2. Machines with a long reach may be used if they can work from outside RPAs or from protected areas within RPAs. They must not encroach onto unprotected soil in RPAs.
3. Debris to be removed from RPAs manually must be moved across existing hard surfacing or temporary ground protection in a way that prevents compaction of soil. Alternatively, it can be lifted out by machines provided this does not disturb RPAs.
4. Great care must be taken throughout these operations not to damage roots as set out in 1.7 above.
5. If appropriate, leaving below ground structures in place should be considered if their removal may cause excessive root disturbance.

3 INSTALLATION OF NEW SURFACING IN RPAs

3.1 **Basic principles:** New surfacing is potentially damaging to trees because it may require changes to existing ground levels, result in localised soil structure degradation and/or disrupt the efficient exchange of water and gases in and out of the soil. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in RPAs. Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

3.2 **Establishing the depth of excavation and surfacing gradient:** The precise location and depth of roots within the soil is unpredictable and will only be known when careful digging starts on site. Ideally, all new surfacing in RPAs should be no-dig, i.e. requiring no excavation whatsoever, but this is rarely possible on undulating surfaces. New surfacing normally requires an evenly graded sub-base layer, which can be made up to any high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted as would happen in conventional surface installation. Some limited excavation is usually necessary to achieve this and need not be damaging to trees if carried out carefully and large roots are not cut. Tree roots and grass roots rarely occupy the same soil volume at the top of the soil profile, so the removal of a turf layer up to 5cm is unlikely to be damaging to trees. It may be possible to dig to a greater depth depending on local conditions but this would need to be assessed by an arboriculturist if excavation beyond 5cm is anticipated. On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility to allow on-site adjustment if excavation of any high points reveals large unexpected roots near the surface. If the roots are less than 2.5cm in diameter, it would normally be acceptable to cut them and the gradient formed with the preferred minimal excavation of up to 5cm. However, if roots over 2.5cm in diameter are exposed, cutting them may be too damaging and further excavation may not be possible. If that is the case, the surrounding levels must be adjusted to take account of these high points by filling with suitable material. If this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made.

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Appendix 4: Site guidance for working in root protection areas (RPAs)

3.3 **Base and finishing layers:** Once the sub-base has been formed, the load spreading construction is installed on top without compaction. In principle, the load spreading formation will normally be cellular and filled with crushed stone although the detail may vary with different products. Suitable surface finishes include washed gravel, permeable tarmac or block paviours set on a sand base. However, for lightly loaded surfacing of limited widths (<3m) such as pedestrian paths, pre-formed concrete slabs may be appropriate if the sub-base preparation is as set out above. In some situations, limited width floating concrete rafts constructed directly on to the soil surface may be acceptable but the design must not include any strip-dug supports.

3.4 **Edge retention:** Conventional kerb edge retention set in concrete filled excavated trenches is likely to result in damage to roots and should be avoided. Effective edge retention in RPAs must be custom designed to avoid any significant excavation into existing soil levels. For most surfaces, the use of pre-formed edging secured by metal pins or wooden pegs is normally an effective way of minimising any adverse impact on trees from the retention structure.

3.5 **Installing new surfacing on top of existing surfacing:** In some instances, existing surfacing can be retained and used as a base for new surfacing. Normally, this will not result in significant excavation that could expose roots so special precautions are not necessary. However, if large roots already protrude above the proposed sub-base level, then the precautions and procedures set out above must be observed.

4 INSTALLATION OF NEW STRUCTURES IN RPAs

4.1 **Basic principles:** New structures in RPAs are potentially damaging to trees because they may disturb the soil and disrupt the existing exchange of water and gases in and out of it. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in RPAs. This can be done by constructing the main structures above ground level on piled supports and redirecting water to where it is needed. The detailed design and specification of such structures is an engineering issue that should be informed and guided by tree expertise.

4.2 **Small sheds and bin stores:** These light structures do not normally require substantial foundations and can have permeable bases. Ideally, their bases should be of a no-dig, load-spreading construction set directly on to the soil surface. They require a flat base and so an undulating site will need levelling to provide a suitable surface. Excavation of any high points by up to 5cm and filling depressions with permeable fill to provide a flat base will normally be acceptable provided no roots greater than 2.5cm in diameter need to be cut. If large roots are found, the preferred course of action would be to raise the base level of the structure by filling rather than cutting roots. However, if this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made. Above the base, there will often be a protective covering fixed onto a frame that can rise directly from the base or be fixed to supports either banged into the ground or set in carefully dug holes. Provided the supports are well spaced, i.e. greater than 1.5m apart, and of a relatively narrow diameter, i.e. not in excess of 15cm, it is unlikely they will cause any significant disturbance to RPAs.

4.3 **Walls, gate piers, buildings and bridges on new foundations:** Conventional strip foundations in RPAs for any significant structure may cause excessive root loss and are unlikely to be acceptable. However, disturbance can be significantly reduced by supporting the above ground part of the structures on small diameter piles and beams or

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cast floor slabs set above ground level. The design should be sufficiently flexible to allow the piles to be moved if significant roots are encountered in the preferred locations. Before the actual installation of the new structure starts, all RPAs that may be affected should be covered with temporary ground protection as set out in BS 5837. Gaps in the ground protection should be left where it is expected to install the piles or dig the holes for gate piers. Pile locations should be initially hand dug to a depth of 75cm to establish if there are any significant roots over 2.5cm in diameter that could be damaged. If significant roots are found, then the pile location must be moved slightly and a new exploratory hole dug. Once the piles have been installed, the lowest points of the supporting beams for the structure must be above the ground level between the piles and there should not be any further excavation. The beams between the piles can be pre-cast and imported to the site ready to fix or can be cast in position using shuttering for the sides and a biodegradable void-former for the base. Gate piers generally require larger holes and have less flexibility for relocation if large roots are found. Localised loss of roots may be unavoidable so each situation should be assessed on its own merits by an appropriate supervising officer once the careful excavations have been completed. Any roots found should be dealt with as set out in 1.7 above. When installing any of these structures, the ground protection must remain in place until the construction is completed and there is no risk of damage to RPAs.

4.4 **Walls on existing foundations:** A free-standing wall on an existing foundation is unlikely to require any additional excavation and so its construction should have no adverse impact on RPAs if the appropriate protection is in place. However, replacing walls that retain the soil of RPAs normally requires some limited excavation back into the exposed soil face to provide a working space of at least 10–20cm behind the inside wall face. This should be done carefully and limited to no more than required to construct the new wall. Any roots found should be dealt with as set out in 1.7 above. Once the wall is completed, any voids behind it should be filled with good quality top soil and firmed into place but not over compacted. Specific difficulties with large roots that emerge during the course of the construction should be referred to the supervising officer.

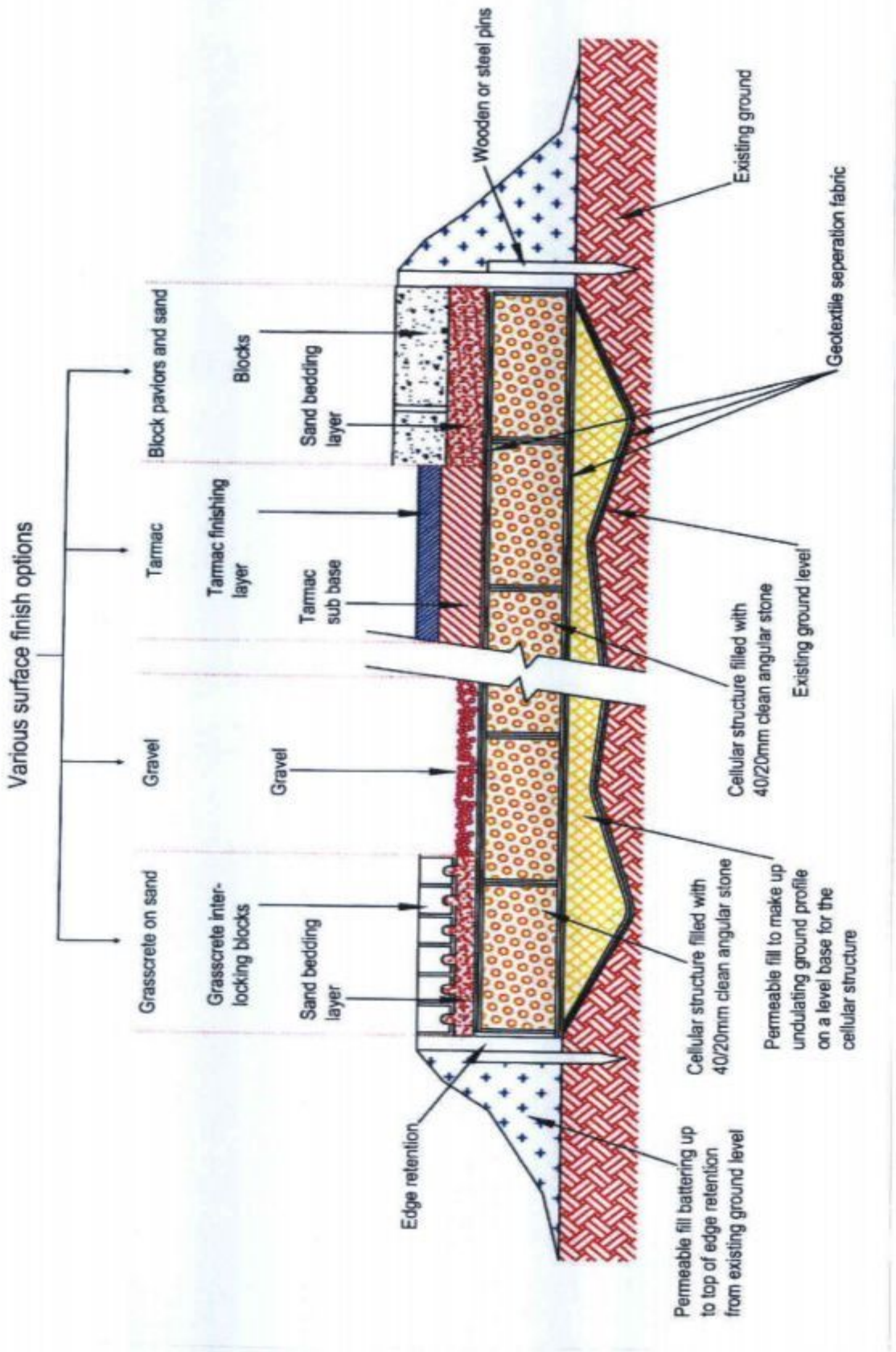
4.5 **Services:** For the purposes of this guidance, services are considered as structures. Excavation to upgrade existing services or install new services in RPAs may damage retained trees and should only be chosen as a last resort. In the event that excavation emerges as the preferred option, the decision should be reviewed by the supervising officer before any work is carried out. If excavation is agreed, all digging should be done carefully and follow the guidance set out in 1.7 above.

5 SOFT LANDSCAPING IN RPAs

5.1 **Upgrading existing soft landscaping or replacing existing surfacing/structures with new soft landscaping:** For the purposes of this guidance, soft landscaping includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of solid structures or compacted surfacing. Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within RPAs. Where new designs require levels to be increased to tie in with new structures or the removal of an existing structure has left a void below the surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place but not over compacted in preparation for turfing or careful shrub planting. Ideally, all areas close to tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage.

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Appendix 5: Illustrative specification for special surfacing in RPAs



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Appendix 5: Illustrative specification for special surfacing in RPAs

CellWeb

Tree Root Protection System

GEOSYNTHETICS



fig. 1



fig. 2

Problems associated with the construction of new developments around mature or any existing trees is well documented. BS5837 (1991) and later APN1 (1996) offer guidelines to those concerned with the protection of trees during the construction process.

The provision of car parking facilities and access roads around trees can lead to problems culminating in the premature loss of the tree itself unless preventative measures are taken to protect the tree roots during and after construction. *(fig. 1)*

Vehicular traffic above tree roots creates compaction of unconfined sub-soils causing oxygen depletion and even a loss of vital nutrients. Creating an impermeable surface above tree roots by installing a compacted sub base for load support also adds to these problems.

The solution is CellWeb, a three dimensional Cellular Confinement System that provides a load transfer blanket significantly reducing vertical loads on unprotected tree roots. *(fig. 2)*

Please contact:

Geosynthetics Limited
Fleming Road,
Harrowbrook Ind. Estate,
Hinckley, LE10 3DU.

Telephone: 01455 617139
Facsimile: 01455 617140 Email: sales@geosyn.co.uk

www.geosyn.co.uk

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Appendix 5: Illustrative specification for special surfacing in RPAs

CellWeb

The CellWeb System uniquely prevents rutting action of sub-soils by confining infill material within the hoop structure of the panel, increasing the infills shear strength. The use of a CellWeb System increases the load capacity of granular infill by up to 50% reducing the overall construction depth required. Perforated cell walls permit through drainage and also provides frictional interlock of the infill again increasing the shear strength of the system.

A non woven geotextile filtration/separation membrane is used beneath the system to prevent migration of materials and also to aid with drainage vertically through the system.

The CellWeb panels are infilled with a clean angular gravel which provides load support and permits air and moisture transfer to the roots ensuring the long term preservation of the tree root structure. *(fig. 5)*

Surfacing materials are at the discretion of the client, however for specific advice please contact our sales office.

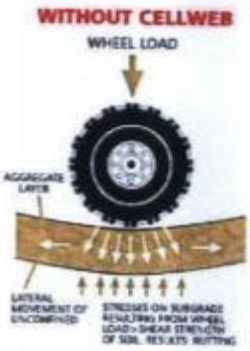


fig. 3

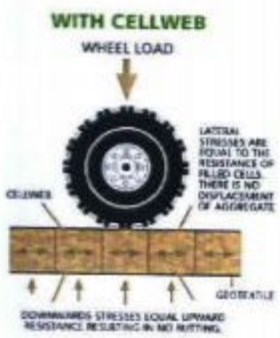
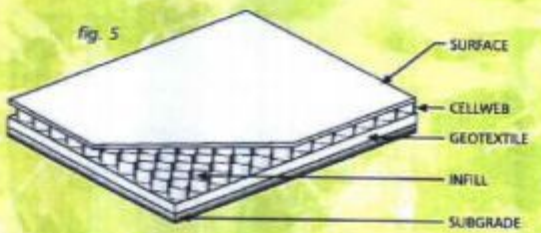


fig. 4

Benefits of using CellWeb

- **Reduction in construction depth.**
- **Prevent compaction of sub-soils.**
- **Prevent oxygen/nutrient depletion.**
- **Environmentally friendly option.**
- **Fast and economic installation.**
- **Technical support available.**

fig. 5



CellWeb is available in four cell depths; 75mm, 100mm, 150mm and 200mm.

The cell depth required is dependant upon specific site conditions. For specification details or project specific design assistance please contact our sales office.

Please contact:

Geosynthetics Limited
Fleming Road,
Harrowbrook Ind. Estate,
Hinckley, LE10 3DU.

Telephone: 01455 617139
Facsimile: 01455 617140 Email: sales@geosyn.co.uk

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Appendix 6: Schedule of tree works

Tree No	Species	Management recommendations
T1	Holm Oak	Crown lift to 2.5m and crown clean

Brief explanatory notes

- **Basis of work recommendations:** The inspection of all trees was of a preliminary nature and only defects visible from the ground have been identified. Each individual tree may not have been inspected closely because of access difficulties and only defects visible from the inspection point have been identified. In addition to tree removals for development and management reasons, further works are listed to establish acceptable levels of risk. All trees should be crown cleaned where appropriate and only works in excess of this have been listed for individual trees. The following points should also be noted before carrying out any works:

1. **Reporting during work operations:** In the context of the preliminary nature of the tree inspection, any defects that may affect tree safety discovered by the contractor when carrying out the work recommendations should be reported to the supervising officer. Modification to the schedule of works may be required because of these reports. The contractor should be specifically instructed on this point.
2. **Implementation of works:** All tree works should be carried out to BS 3998 *Recommendations for Tree Work* as modified by more recent research. It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association. Their Register of Contractors is available free from Ampfield House, Romsey, Hants, SO51 9PA - Telephone 01794 368717; website www.trees.org.uk/contractors.htm.
3. **Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 provides statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.
4. **Stumps:** Stumps to be removed within the RPAs of retained trees should be ground out with a stump grinder to minimise any disturbance unless otherwise authorised by the supervising officer.

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Appendix 7: Programme of arboricultural input

Arboricultural action	Programming of action	Extent of arboricultural input	Nature of supervision	Signed off (Council use)
Pre-commencement site meeting with supervising arboriculturist, site manager and council tree officer	Before any site activity starts or once tree protective measures have been installed	• Meeting on site • Review any updated proposals • Confirm tree protective measures are acceptable if already installed	Site meeting and letter/email	
Tree works carried out	Before protective measures are installed	• Meeting with contractor if necessary at the discretion of supervising arboriculturist	Site meeting and letter/email	
Finalising tree protection proposals and installation for agreement by council	Before any heavy machinery enters the site	• Preparation of final plans and specifications for agreement by the council • Provide photographs showing relevant aspect of installed tree protective measures • Meeting with contractor to finalise specifications and locations before installation with a further visit on completion to verify correct installation, at the discretion of the arboricultural consultant	Site meeting and letter/email	
Installation of new custom designed surfacing within RPAs but outside barriers	Before any vehicular or pedestrian access that could degrade the soil	• Meeting with contractor for briefing before installation with further visits as necessary, at the discretion of the arboricultural consultant	Site meeting and letter/email	
Installation of new services	At the discretion of the developer	• Meeting with contractor for briefing before work starts with further visits as necessary, at the discretion of the arboricultural consultant	Site meeting and letter/email	
Removal of barriers and ground protection	When construction activity is finished	• Meeting with contractor for briefing before work starts	Site meeting and letter/email	

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