

Arboricultural Impact and Mitigation

Statement for Development Proposals at:

Land adjacent to 26 Wittering Road
Hayling Island
PO11 9SB

Proposal: New detached dwelling with associated access and parking

Prepared for: Mr and Mrs Taylor

Report Ref: WT 085-25 AIA - 20-12-2025

Report Date: 22 December 2025



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Summary table: Overall impact on trees

Impact	Reason	High/moderate quality trees		Low/unretainable quality trees	
		A	B	C	U
Trees to be removed	Construction activities	None	None	G006, T012, T013, T014, T015, T016, T017, T018, G023, G024 (part)	T021
Trees to be removed	Risk management	None	None	None	None
Changes within notional RPAs	Construction activities	None	T011	T009, T010, T019, T020	None
Modifications to notional RPAs	existing root restrictions	None	None	T005	None
Retained trees to be pruned	Space for development	None	T011	T019	None



1. INTRODUCTION

- 1.1 **Instruction:** This report was instructed by Mr and Mrs Taylor to prepare relevant information to accompany the planning submission for a new detached dwelling with associated access and parking at land adjacent to 26 Wittering Road, Hayling Island. The report details all trees that are associated with the siting of the proposed development, and their positions are illustrated on the separately provided tree protection plan attachment WTP1 in Appendix 1.
- 1.2 **Site visit:** The site visit was undertaken on 9th October 2025. The trees were surveyed visually, externally and from ground level only. No detailed investigations were undertaken, samples, or internal decay detection readings taken for further analysis. All dimensions have been estimated unless stated otherwise. Weather conditions at the time of the survey were clear, still and dry, with good visibility.
- 1.3 **Statutory tree protection: Protected trees:** After investigating the local planning authority (LPA) online mapping system, it was established that there is a tree preservation order (TPO 1072) which protects a cherry, oak and pine within the rear garden. From my site survey, these trees no longer exist so there do not appear to be any relevant TPO constraints. As far as we are aware, the site is not within a Conservation Area (Image 1).

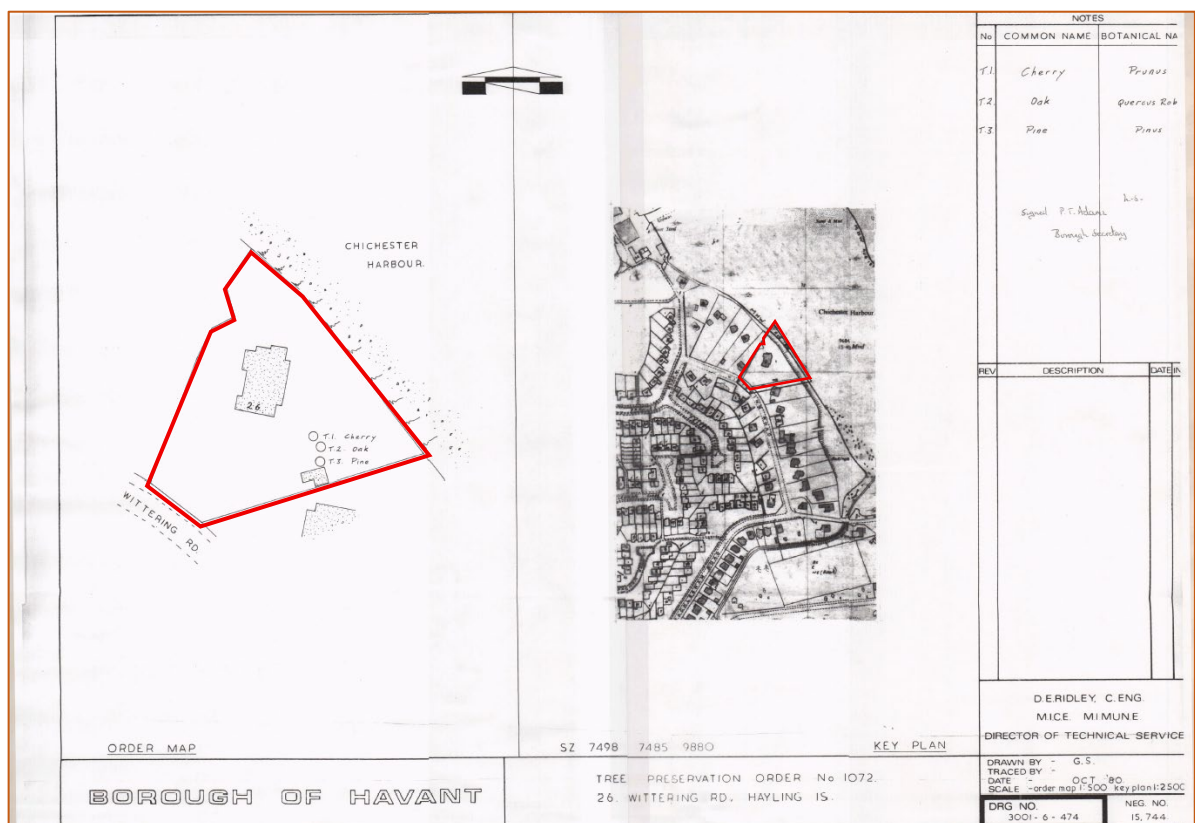


Image 1: The property (indicated by the red boundary outline) shows three protected trees in the rear garden



- 1.4 **Limitations of this report:** The following limitations apply to this report:
- 1.4.1 **Archaeology:** Although trees can grow in archaeologically sensitive locations, I have no specialist expertise in this discipline, and this report does not consider this aspect.
- 1.4.2 **Ecology:** 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. These could impose significant constraints on the use and timing of access to the site in addition to any of the tree constraints set out in this report. Paragraph 180 emphasises the conservation and enhancement of biodiversity to protect the intrinsic character of the natural environment, especially the securing of measurable net gains for biodiversity net gain credits. Therefore, calculations for habitat compensation (normally 10%) or habitat restoration in line with the DEFRA Biodiversity Metric 3.1 may be required. These issues are beyond my area of expertise, and I advise that you seek the advice from an ecologist on whether any such constraints apply to this site.
- 1.4.3 **Tree assessment and management advice:** The comments made about the health and stability of the trees within this report were correct at the time of inspection. It should be recognised that trees are dynamic structures that can never be completely predictable and may become unstable or partially unstable even in average weather conditions. Changes can occur not only to environmental triggers but also in response to biological or mechanical events. For these reasons, the tree assessment advice only remains 18 months from the date that the trees were last inspected. No tree is ever safe due to the unpredictable laws and forces of nature.
- The inspection was carried out from ground level. Where there was restricted access to the base of a tree, its attributes were assessed from the nearest point of access. Binoculars were used to observe features higher in the canopies such as foliage, extension growth and/or bud proliferation. No soil or tissue samples were taken during this inspection, and no invasive diagnostic equipment was used to detect decay. If ivy covered, I probed and tapped the wood from ground level to establish if there were any obscured features that were relevant to the assessment. This did not extend to removing all the ivy or probing beyond what could be reached from ground level. Where trees have thick ivy, it would be impractical in every case to remove it or climb into the crown to have a closer look. However, where I suspect there are obvious visible significant outward health problems or structural defects visible under the ivy, I may recommend its removal for a further assessment.
- 1.4.4 **Soil assessment:** **Soil assessment:** British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction – Recommendations advocates that a soil assessment should be carried out to inform decisions relating to Root Protection Areas (RPAs), tree protection, new planting and foundation design. I have consulted the British Geological Survey (BGS) website and their Geology Viewer, and this advises that the bedrock geology for the site is **(Portsmouth Sand Member and Whitecliff Sand Member - Sand)**. I did not undertake any excavations on site to confirm this and a full geotechnical site investigation may need to be undertaken to provide a more in-depth level of information regarding soil type for the site.



- 1.5 **Technical references:** This arboricultural impact assessment and arboricultural method statement is based on the following primary technical references:
- British Standards Institution (2012) BS 5837: Trees in relation to design, demolition and construction – Recommendations
 - National Planning Policy Framework (NPPF) revised in 2023 setting out the Governments planning policies for England and how these should be applied.
- 1.6 **Drawings and documents provided:** Several plans and documents were provided as part of the current planning proposal. My drawing and report have been developed in context with the following provided information:
- Land survey reference 26 Wittering Road, Hayling Island - Survey, received by email on 6th October 2025
 - Layout, reference drawing number: 483-OBA-XX-XX-DR-A-01 - WIP Proposed Site Plan, received by email on 3rd December 2025
- 1.7 **Qualifications and experience:** This report is based on my site observations and the provided information, interpreted in the context of my experience. I have experience and qualifications in arboriculture that can be reviewed at <https://wadeytrees.co.uk/wp-content/uploads/2020/03/CV-Mark-J-Wadey-2.pdf>.



2. SITE VISIT AND COLLECTION OF DATA

- 2.1 **Brief description of site and surrounding tree cover:** The proposal is located within the garden of an existing detached dwelling on Wittering Road (Image 2). There are a variety of deciduous and coniferous trees scattered throughout the site and around the site boundaries. Although they are not individually prominent, they offer some wider visual amenity to the surrounding area.



Image 2: The site boundaries are approximately indicated by the yellow outline

- 2.2 **Tree assessment method:** The existing tree stock has been identified and graded in line with the current British Standard BS 5837 2012: Trees in relation to design, demolition and construction - Recommendations to enable informed decisions to be made regarding tree retention. The report also details methods of protection to be implemented to safeguard the retained tree.
- 2.3 **Independent assessment of trees:** I inspected each tree and have indicated the numbering on the tree protection plan (WTP1) in Appendix 1. For each tree and group, I collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. As advocated in BS 5837, each tree was then allocated to one of four categories which reflected its suitability as a material constraint on development:
- **Category A:** Trees of high quality and value
 - **Category B:** Trees of moderate quality and value
 - **Category C:** Trees of low quality and value
 - **Category U:** Trees unsuitable for retention, usually to be removed

This information is recorded in the tree schedule included as Appendix 2, with further explanatory notes.

- 2.4 **The root protection areas:** BS5837:2012 paragraph 4.6.1 gives recommendations for the areas of root protection to be the equivalent to the area of a circle centred on the single stem



tree with a radius of at least 12 times the trunk diameter. For trees with more than one stem, the recommended formulas were used to arrive at the combined stem diameter calculation. The calculated root protection area (RPA) for each tree was capped to 707m². This distance is given for guidance to each tree or group in the schedule. In practice, the siting of the specific protection measures may be different. The implication of this notional RPA is that no significant disturbance should occur within it if the trees are to be successfully retained. As advocated in paragraph 4.6.3 of that document, where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon or equivalent area has been produced. Any modifications to the shape of the RPA have reflected our interpretation of a reasonable and likely root distribution.

3. **WORKING WITH THE DESIGN PROPOSAL**

General background

- 3.1 **Tree constraints as part of the design layout:** As recommended in section 5 of BS5837, the constraints posed by existing trees were identified to inform the site layout design. The collected information was used to provide relevant guidance to the architect so that when moderate/higher quality (category A and B) trees were recognised, their retention was given greater weight than the lower quality (category C and U) trees; which have less importance to the site and its surroundings. This helps to avoid misplaced tree retentions and provide opportunities for new trees that may bring about future enhancements for the site. Taking the overall conception and design issues into account, the identified constraints have properly informed the planning process to minimise any negative impact on the existing tree stock. Retaining the most important trees means that this proposal will maintain a sustainable tree canopy that will be in harmony with its new surrounding buildings and landscape; thereby enhancing any overall impact on the wider local amenity.
- 3.2 **Relevant Planning Policy taken account during the design stage:** The requirements of the British Standard 5837 and National Planning Policy Framework (NPPF) can be met using planning conditions to require the mitigation measures set out in this report. These proposals comply with the NPPF in terms of achieving sustainable development, good design and conserving the natural environment by retaining all of the important trees adjacent the site. Paragraphs 55 and 56 of the NPPF deal with planning conditions. In this respect, sufficient detail has been provided so an enforceable planning condition requiring the trees to be protected can be based on the accompanying arboricultural method statement (AMS) and associated tree protection plan WTP1.

4. **DEVELOPMENT INFLUENCE ON TREE COVER AND PROPOSED MITIGATION**

Specific issues on this site

- 4.1 **Tree protection plan WTP1:** Plan WTP1 in Appendix 1 has been prepared based on the latest layout and is intended to provide a preliminary indication of the tree issues. It shows the existing trees numbered, with their assessed categories in the respective colours as set out in paragraph 2.3 above. Trees to be removed are highlighted with a red crown outline. A preliminary location for protective fencing is illustrated with black post and rail annotation



and the RPA to be protected behind is shown with the black diagonal hatching. Any precautionary areas are shown with a yellow filled annotation. I stress that this plan is intended to provide an overview of how the tree protection will work and may require more detailed adjustments for the final submission in the context of any feedback.

- 4.2 **Trees to be removed:** The trees proposed for removal (G006, T012, T013, T014, T015, T016, T017, T018, T021 and G023, G024 (part)) are low quality and do not offer any significant amenity when viewed from outside the site. The scheme offers sufficient space for new landscaping that could include trees or shrubs that will easily mitigate these losses. If required, it would be appropriate for the precise detail to be agreed with the LPA through a planning condition.
- 4.3 **Tree pruning of neighbouring trees:** Trees T011 and T019 have some small branches that extend over the boundary so some remedial pruning may be required to provide space for construction and future occupancy. However, in the case of T011 its lowest branches are already close to the existing garden sheds so some minor pruning would be justified for normal garden management anyway (Image 3). This would not adversely affect its health or have a significant impact on local character or amenity because its profile from public viewpoints would remain unchanged. T019 has several significant stem defects which require some remedial pruning to minimise risk of failures (Image 4). This means that the crown will need to be reduced and contained to a smaller size so it will not be onerous now or in the future. In my opinion, these works will need to be done in the short term irrespective of this development proposal.



Image 3: Low branches from the adjacent neighbouring trees overhang the existing wooden garden sheds



Image 4: T019 has some significant stem defects that require remedial works to minimise risk of future failures

4.4

Removal of existing sheds: There are several timber sheds/structures (Image 5) within the existing RPAs of four trees (T008, T009, T010 and T011) so, there is potential for harm if these structures are not removed carefully. However, in this case, it is entirely feasible to remove them by hand to minimise harm to both canopies and roots. To further minimise root disturbance, the existing concrete subbase will be left in situ for the proposed new surfacing and car port structure.



Image 5: The existing sheds sit over a concrete subbase which can be utilised for the carport and parking bay



- 4.5 **Installation of new surfacing:** The car port surface and the new footpath around the outer edge of the new dwelling will require the installation of surfacing over the notional RPAs of several trees along the western boundary (T009, T010, T011, T019 and T020). These are all offsite trees that provide some useful boundary screen, so they should be protected during the construction operations. To minimise harm to the roots of these adjacent trees, a low impact cellular confinement surface system is proposed to be installed (as supported by BS 5837:2012). Also, in this case, the adjacent boundary fence will provide some protection from construction activities so there is no need to erect temporary BS5837 compliant fencing to minimise harm. However, to provide suitable access for personnel during the build, any exposed RPAs between the fence and the new structure should be covered with ground protection to minimise harm to underlying roots.
- 4.6 **Proposed new structures:** The footprint of the proposed building and car port encroaches into the notional root protection areas of two trees (T011 and T019). However, as supported by BS5837:2012 these parts of the building could be constructed using a low impact foundation design to minimise harm to them. This would ensure that the proposal is compliant with the recommendations in BS5837:2012 relating to structures (clauses 7.5.1 to 7.5.5).
- 4.7 **Site access, storage and movement of materials:** Building materials can be delivered to site using the existing vehicular access and stored outside the fenced areas or on newly formed hard surfaces (see plan WTP1). It is entirely feasible to move materials to the working areas by hand or using small low ground-effect plant, with no significant harm to trees. Provided that protective measures are installed/retained correctly, there is unlikely to be any adverse effects on trees from construction traffic moving in and out of the site.
- 4.8 **Drainage and other services:** Number 26 is already serviced, and it is likely that the new dwelling will connect into the existing services, without the need to cause any disruption to RPAs. However, for the avoidance of doubt, the default specification for any service routes through tree protection zones would require hand digging precautions as recommended in Appendix 3. We advise that these matters are considered at an early stage and agreed with the LPA prior to the work commencing as they may reasonably require details of service routes to be provided as a condition of consent. The same goes for the disposal of surface water, where soakaways can be located outside tree protection zones. It should be noted that any maintenance, replacement or new services would need to satisfy the same criteria.
- 4.9 **Post occupancy pressures on trees:** The location and character of the proposal has been achieved in consideration of all the site factors, including the presence of trees. In reference to BS5837:2012 recommendations paragraph 5.3.4 and its sub paragraphs, any issues relating to shading, privacy and screening, direct damage, future pressure for removal and seasonal nuisance have been factored into the design to minimise any post occupancy pressure on trees. In this case, the new dwelling will have ample garden space away from the surrounding trees with the main living areas looking out to the wider landscape with unhindered sea and garden views. After discussions with the architect, it was confirmed there is sufficient space within the internal design to allow the occupants normal and reasonable access to daylight. Furthermore, the existing trees around the boundaries will provide useful canopy cover



between the adjacent properties and it will be in the interests of new occupants to retain them for the seclusion and shelter they provide. In the context of all these points, I believe that the new occupiers should be able to have normal use of their property without unreasonable hindrance from the adjacent trees, so the development proposal is unlikely to bring new pressures on them.

5. CONCLUSIONS

- 5.1 **Overall summary:** This proposal will result in the loss of several trees that are all low category because of their poor condition or small size. To mitigate the loss of these trees, a landscaping scheme is feasible, which could include significant new trees around the site in sustainable locations. The proposals take proper account of potential pressures for pruning and felling post-occupancy and this submission has demonstrated that it is reasonably practicable to develop the scheme without significant harm to retained trees. If adequate precautions to protect the retained trees are implemented as recommended in this report, and as may reasonably be required by consent conditions, the overall impact of the proposal on local amenity will be low and limited to the short term only. Any additional information required for reassurance, can be provided by way of conditions attached to the planning permission. The scheme accords with the principles set out in the National Planning Policy Framework and it is technically compliant with BS5837:2012 and the way in which that Standard has been applied. Any deviations from its recommendations have been properly justified with appropriate actions. Therefore, I do not believe there are supportable or reasonable grounds for refusing permission in terms of the trees.

6. RECOMMENDATIONS TO PROTECT TREES DURING DEVELOPMENT

- 6.1 **Arboricultural method statement:** The successful retention of trees depends on the quality of the protection and the administrative procedures to ensure those protective measures remain in place whilst there is a realistic risk of damage. An effective means of doing this would be through the arboricultural method statement, set out in Appendix 3, that can be specifically referred to in a planning condition. The details of this arboricultural method statement should be made available to the builders and its guidance followed to ensure that the trees are fully protected during the construction works. If appropriate, the builder should instruct an arboricultural consultant to comply with any necessary planning conditions relating to pre-commencement meetings and/or agree protection with ongoing supervision requirements sanctioned by the LPA.

7. RECOMMENDATIONS TO ENHANCE TREE COVER

- 7.1 **New tree planting and enhancement landscaping opportunities:** Although there will be some loss of low-quality trees required to make way for buildings and access routes, there is plenty of space for significant tree and hedge planting that will improve the overall canopy cover and offer more future landscape enhancements to the site. It is proposed that the detail of the locations, species and sizes are agreed with the LPA through a condition to ensure that the final scheme optimises the potential of the space available. Any trees that die or progressively decline within five years will be replaced and maintained until successfully established



- 7.2 **New trees – size at planting and other detailed specifications:** If instant impact on landscaping is required, the new trees will need to be as large as possible for the planting space available. The supply, planting and maintenance of all new trees should be in accordance with BS 8545, with an expectation that any planning conditions will secure the provision of appropriate maintenance and replacement in the event of any trees not surviving to independence in the landscape.
- 7.3 **Tree establishment and care:** For further advice on young tree establishment, a useful introductory guide has been produced by the Arboricultural Association which can be found at <https://www.trees.org.uk/Help-Advice/Guide-to-Young-Tree-Establishment>. This sets out the principles of good tree choice, planting practice and aftercare.

Mark Wadey NDArb CUEW MArborA RCarborA MICFor

Arboricultural Consultant



Institute of
Chartered Foresters
Registered Consultant

Appendices:

- 1 The tree protection plan WTP1
- 2 Data collection – Tree schedule & explanatory notes
- 3 Arboricultural Method Statement

Appendix 1 – The Tree Protection Plan: Illustrating tree protection and management proposals – WTP1

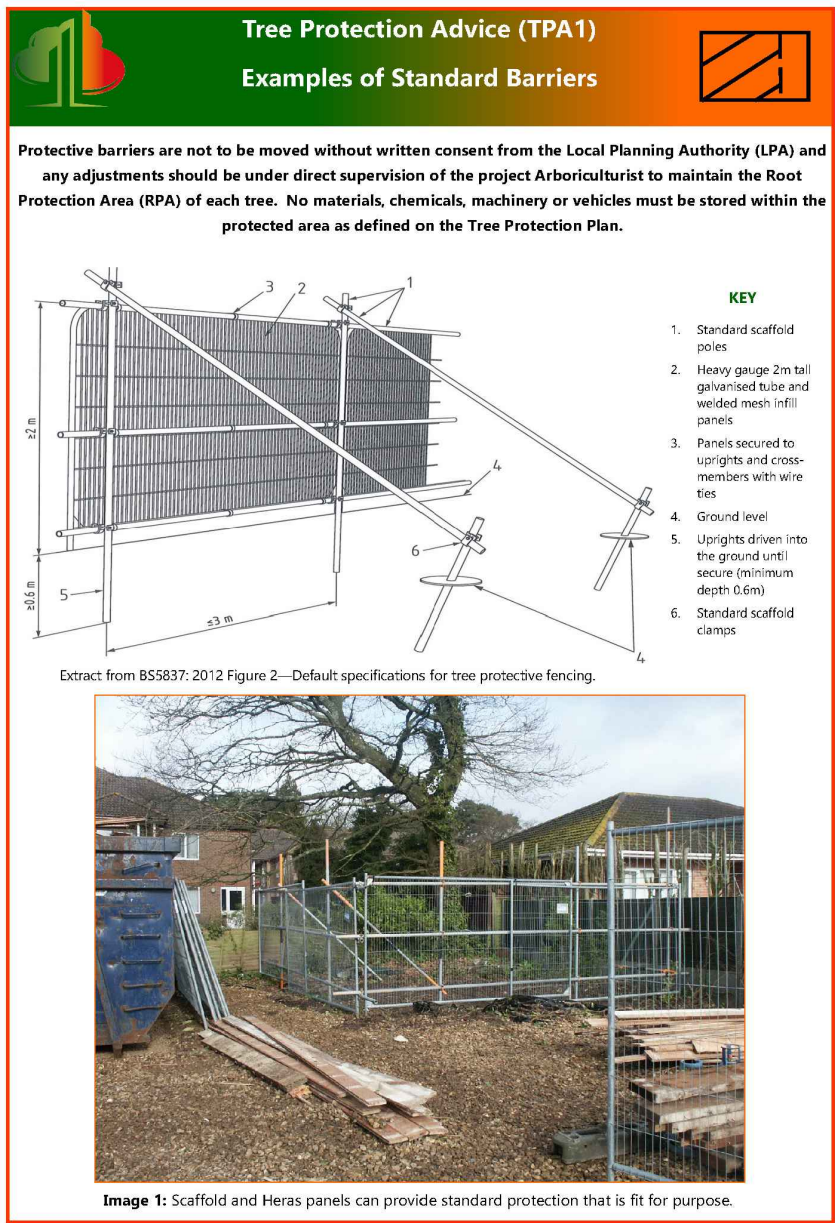
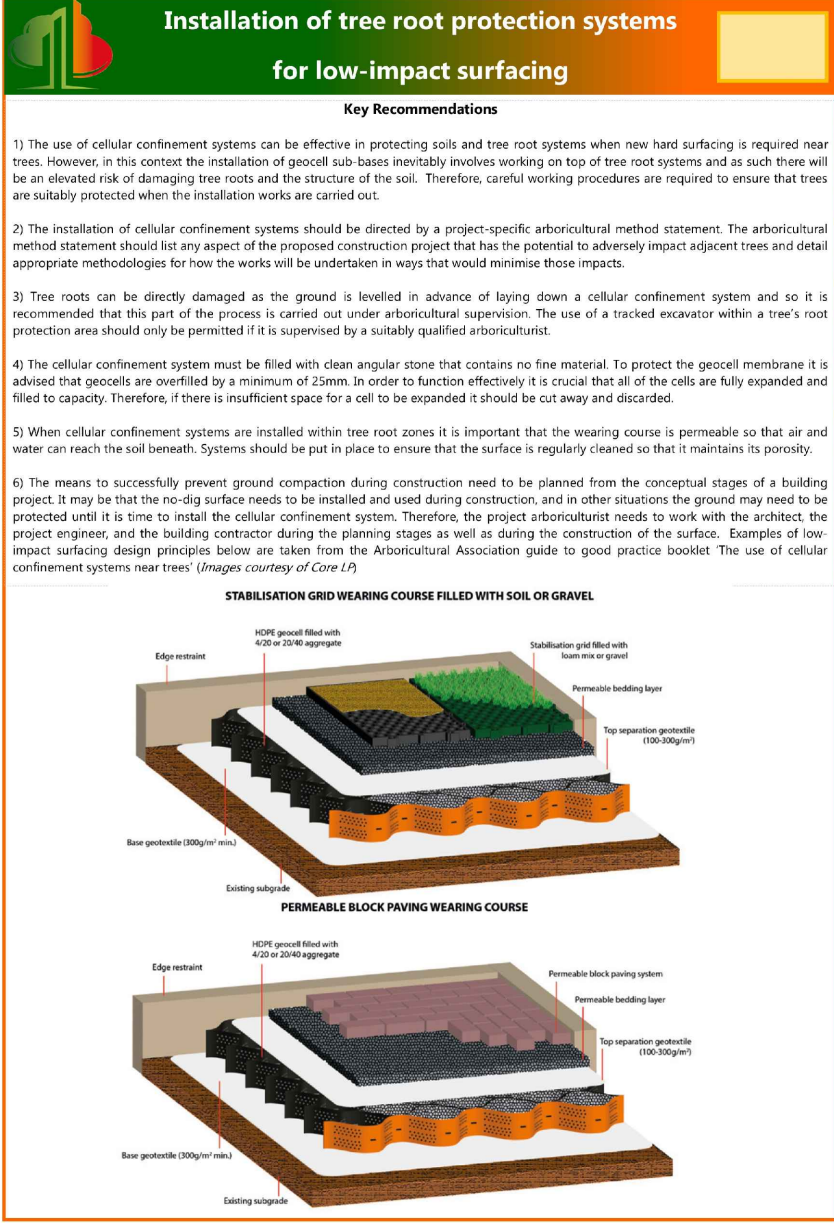
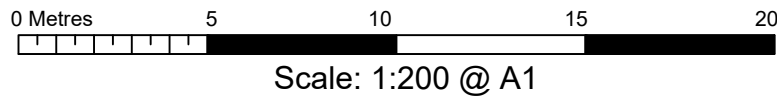
Content: 1 A1 plan @ scale 1:200

Tree No.	Species	Retention Category	RPA	Tree No.	Species	Retention Category	RPA
T001	Oak (<i>Quercus sp.</i>)	B1	Radius: 4.2m. Area: 55 sq m.	T016	Holly (<i>Ilex sp.</i>)	C1	Radius: 1.6m. Area: 8 sq m.
T002	Magnolia (<i>Magnolia sp.</i>)	C1	Radius: 3.0m. Area: 28 sq m.	T017	Camellia sp. (<i>Camellia sp.</i>)	C1	Radius: 1.8m. Area: 10 sq m.
T003	Cherry (<i>Prunus sp.</i> 'Cherry')	C1	Radius: 1.0m. Area: 3 sq m.	T018	Rhododendron (<i>Rhododendron ponticum</i>)	C1	Radius: 2.4m. Area: 18 sq m.
G004	Elder (<i>Sambucus nigra</i>) Sycamore (<i>Acer pseudoplatanus</i>) Berberis (<i>Berberis sp.</i>) Holm oak (<i>Quercus ilex</i>) Portugal laurel (<i>Prunus lusitanica</i>) Privet (<i>Ligustrum vulgare</i>)	C1	Area: 63 sq m.	T019	West Himalayan birch (<i>Betula utilis</i> 'Jacquemontii')	C1	Radius: 3.6m. Area: 41 sq m.
T005	Hawthorn (<i>Crataegus sp.</i>)	C1	Radius: 3.0m. Area: 28 sq m.	T020	West Himalayan birch (<i>Betula utilis</i> 'Jacquemontii')	C1	Radius: 3.0m. Area: 28 sq m.
G006	Yew (<i>Taxus sp.</i>)	C1	Area: 34 sq m.	T021	Willow (<i>Salix sp.</i>)	U	Radius: 0.6m. Area: 1 sq m.
T007	Cedar (<i>Cedrus sp.</i>)	B1	Radius: 4.2m. Area: 55 sq m.	T022	Holly (<i>Ilex sp.</i>)	C1	Radius: 1.2m. Area: 5 sq m.
T008	Sycamore (<i>Acer pseudoplatanus</i>)	C1	Radius: 1.2m. Area: 5 sq m.	G023	Mixed shrubs (<i>Mixed shrubs</i>)	C1	Area: 56 sq m.
T009	Sycamore (<i>Acer pseudoplatanus</i>)	C1	Radius: 1.2m. Area: 5 sq m.	G024	Yew (<i>Taxus sp.</i>)	C1	Area: 59 sq m.
T010	Holly (<i>Ilex sp.</i>)	C1	Radius: 1.2m. Area: 5 sq m.	T025	Chusan palm (<i>Trachycarpus fortunei</i>)	C1	Radius: 1.6m. Area: 8 sq m.
T011	Sweet chestnut (<i>Castanea sativa</i>)	B1	Radius: 6.7m. Area: 141 sq m.	T026	Griselinia (<i>Griselinia sp.</i>)	C1	Radius: 1.0m. Area: 3 sq m.
T012	Apple (<i>Malus sp.</i>)	C1	Radius: 0.7m. Area: 2 sq m.	G027	Mixed shrubs (<i>Mixed shrubs</i>)	C1	Area: 336 sq m.
T013	Tamarisk (<i>Tamarix</i>)	C1	Radius: 2.4m. Area: 18 sq m.	T028	Apple (<i>Malus sp.</i>)	C1	Radius: 2.4m. Area: 18 sq m.
T014	Judas tree (<i>Cercis siliquastrum</i>)	C1	Radius: 0.9m. Area: 3 sq m.	T029	Bay tree (<i>Laurus nobilis</i>)	C1	Radius: 4.4m. Area: 61 sq m.
T015	Canary palm (<i>Phoenix canariensis</i>)	C1	Radius: 1.8m. Area: 10 sq m.				

Tree protection and site monitoring		
Planning, communication and preliminary timing of events		
Site managers, clearance and construction teams are normally expected to deliver the tree protection requirements shown on this plan, so it will be important for these relevant parties to be involved at the earliest stages of site works. In this context, a pre-commencement site meeting is critical to understand the necessary tree protection requirements for this site to avoid unnecessary tree harm.		
The table below summarises the important elements of site supervision/monitoring:-		
Pre-commencement site meeting	A pre-commencement meeting must be held on site before any of the site clearance/demolition or construction works start. This should be attended by the contractor, site manager or agent, the project arboriculturist and if available the tree officer. The methods of tree protection outlined in this report must be fully discussed at this meeting so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications must be recorded and circulated to all parties in writing.	
Arboriculturist's role	<ul style="list-style-type: none">• Liaise with developer and LPA to ensure that appropriate protective measures are in place before any works start on site• Inspect the site to check that the arboricultural conditions have been complied with and advise where day to day tree problems arise• Advise on the issue of work instructions relating to arboricultural matters	
Frequency of visits	<ul style="list-style-type: none">• As agreed at the pre-commencement meeting	
Reporting	<ul style="list-style-type: none">• The site manager will be advised in writing at the time of the visit of any relevant points to be followed up with a formal letter of confirmation	
Communication	<ul style="list-style-type: none">• LPA and developer to be copied relevant correspondence	

Site monitoring checklist: The following site monitoring checklist is an aide-memoire for all pre-commencement and site supervision visits. After each visit, if, or something similar, should be circulated to all relevant parties and kept as a record to demonstrate that all site operations have been compliant with the approved tree protection requirements, and to satisfy the discharge of planning conditions

Pre-commencement	Compliant Y/N	Action
Acceptable demolition/site clearance works		
Tree works undertaken/additional requirements		
Method statement/tree protection plan available on site		
Suitable locations for welfare and material storage etc.		
Suitable space available for vehicle access etc.		
Services/roadway locations agreed		
Tree protection/precautions	Compliant Y/N	Action
Protective fencing		
Ground protection		
Temporary surfacing		
New surfacing/replacement of existing		
Structures in RPA's		
Hand digging to install services		
Soft/hard landscaping		
Soil amelioration requirements		
Any other precautionary measures required within RPA's		
Outcome of meeting	Y/N	Action
Can the development lawfully start/continue?		
Are changes required on site to comply with approved tree protection plan?		



RPA where the existing timber sheds will be carefully removed and the concrete foundations utilised for the new parking and carport areas where feasible. If the old foundations cannot be used, new low impact surfacing and foundations will be installed in accordance with Appendix 3 of the Wadey Trees report to minimise tree harm.

Protective fencing to be erected after the timber sheds have been carefully removed.

The existing boundary fence will restrict construction activity from entering the RPA's in this area so temporary BS5837 compliant fencing is not considered necessary to protect the construction exclusion zone (CEZ).

RPA where the new low impact surfacing and foundation will be installed in accordance with Appendix 3 of the Wadey Trees report to minimise tree harm.

Key:

- T001 - Trees - colour coded by BS 5837 category
- A - BS category - Trees of high quality
- B - BS category - Trees of moderate quality
- C - BS category - Trees of low quality
- U - BS category - Trees unsuitable for retention
- Notional BS 5837 RPA boundaries
- Offset BS 5837 RPA's taking account of pre-existing barriers to root growth
- Trees to be removed
- Tree canopies
- Existing layout
- Proposed layout
- Construction exclusion zone (CEZ) to be protected by BS 5837 compliant fencing
- Site boundary
- Precautionary area

For further information, refer to the WT tree schedule. Do not scale from this drawing (unless for planning purposes), please check all dimensions on site, and notify us of any discrepancies. Wadey Trees Ltd cannot be held responsible for inaccuracies in the topographical plan on which this drawing is based. © Wadey Trees Ltd 2020.

This drawing is designed to reflect only the principles of layout and/or design insofar as these relate to the protection of trees to be retained, and should NOT be read as a definitive engineering or construction method statement. Reference should be made to the architect or structural engineer, as appropriate, over any matters of construction detail or specification, or any engineering standards or regulatory requirements relating to proposed structures, hard surface or underground services.

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Client:
Mr and Mrs Taylor

Architect:
OB Architecture

Drawn: E.S. **Checked:** M.W. **Date:** 9 Dec 25 **Project:**

Location of trees, construction and development:
26 Wittering Road, Hayling Island, PO11 9SB

Project ID: WTP1 **Drawn by:** Tree Protection Plan

Scale: 1:200 **Sheet size:** A1 **Sheet number:**

WTP0001-01 **WT 000-25** **Revised:** PUBLISHED

26 Wittering Road, Hayling Island - Survey and
M&S, C&A, XX, XX, DR, A-01 - WTP Proposed Site Plan

Appendix 2 – Data Collection: (In accordance with BS 5837 (2012), all tree schedule data has been collected based on the recommendations set out in subsection 4.4 of BS 5837)

NOTE: Colour annotation is A trees green background; B trees blue background; C trees grey background; U trees red background

Tree No.	Species	Height (m)	Stem diameter(s) (mm)	Spread	Physiological Cond	Structural Cond	Life Stage	Survey Notes	Rem. Contrib.	Retention Category	RPA	Recommendations
T001	Oak (<i>Quercus sp.</i>)	11	350	N:6 E:4 S:6 W:5	Fair	Fair	Early Mature	There are no obvious visible signs of poor health or structural/instability problems that would ordinarily indicate there is a significant risk associated with the tree.	30+ Years	B1	Radius: 4.2m. Area: 55 sq m.	
T002	Magnolia (<i>Magnolia sp.</i>)	6	250	N:3 E:3 S:2 W:3	Good	Fair	Early Mature	Provides useful boundary cover.	20+ Years	C1	Radius: 3.0m. Area: 28 sq m.	
T003	Cherry (<i>Prunus sp.</i> 'Cherry')	3	80	N:2 E:3 S:3 W:1	Good	Fair	Early Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.0m. Area: 3 sq m.	
G004	Elder (<i>Sambucus nigra</i>) Sycamore (<i>Acer pseudoplatanus</i>) Berberis (<i>Berberis sp.</i>) Holm oak (<i>Quercus ilex</i>) Portugal laurel (<i>Prunus lusitanica</i>) Privet (<i>Ligustrum vulgare</i>)	8	100		Good	Fair	Semi Mature	Provides useful boundary cover.	20+ Years	C1	Area: 63 sq m.	

Appendix 2 – Data Collection: (In accordance with BS 5837 (2012), all tree schedule data has been collected based on the recommendations set out in subsection 4.4 of BS 5837)

Tree No.	Species	Height (m)	Stem diameter(s) (mm)	Spread	Physiological Cond	Structural Cond	Life Stage	Survey Notes	Rem. Contrib.	Retention Category	RPA	Recommendations
T005	Hawthorn (<i>Crataegus sp.</i>)	7	250	N:3.5 E:3.5 S:3.5 W:3.5	Good	Fair	Early Mature	Restrictions to access: Dense ivy present over trunk Provides useful boundary cover.	20+ Years	C1	Radius: 3.0m. Area: 28 sq m.	
G006	Yew (<i>Taxus sp.</i>)	3	100		Good	Fair	Semi Mature	Provides useful boundary cover. Regularly clipped hedge.	20+ Years	C1	Area: 34 sq m.	Fell to facilitate development
T007	Cedar (<i>Cedrus sp.</i>)	11	350	N:5 E:5 S:3 W:5	Good	Good	Semi Mature	Small tree with future potential.	30+ Years	B1	Radius: 4.2m. Area: 55 sq m.	
T008	Sycamore (<i>Acer pseudoplatanus</i>)	8	100	N:2 E:2 S:2 W:2	Good	Fair	Young	Provides useful boundary cover.	20+ Years	C1	Radius: 1.2m. Area: 5 sq m.	
T009	Sycamore (<i>Acer pseudoplatanus</i>)	8	100	N:2 E:2 S:2 W:2	Good	Fair	Young	Provides useful boundary cover.	20+ Years	C1	Radius: 1.2m. Area: 5 sq m.	
T010	Holly (<i>Ilex sp.</i>)	8	100	N:2 E:2 S:2 W:2	Good	Fair	Young	Provides useful boundary cover.	20+ Years	C1	Radius: 1.2m. Area: 5 sq m.	Prune back lowest secondary and tertiary branches overhanging the site to provide 3-4m clearance from ground level

Appendix 2 – Data Collection: (In accordance with BS 5837 (2012), all tree schedule data has been collected based on the recommendations set out in subsection 4.4 of BS 5837)

Tree No.	Species	Height (m)	Stem diameter(s) (mm)	Spread	Physiological Cond	Structural Cond	Life Stage	Survey Notes	Rem. Contrib.	Retention Category	RPA	Recommendations
T011	Sweet chestnut (<i>Castanea sativa</i>)	11	6 stems: 250, 250, 250, 200, 200, 200	N:4 E:4 S:5 W:4	Good	Fair	Early Mature	There are no obvious visible signs of poor health or structural/instability problems that would ordinarily indicate there is a significant risk associated with the tree.	30+ Years	B1	Radius: 6.7m. Area: 141 sq m.	
T012	Apple (<i>Malus sp.</i>)	4	60	N:3 E:2 S:1 W:2	Good	Fair	Young	Poorly developed tree, with low future potential.	20+ Years	C1	Radius: 0.7m. Area: 2 sq m.	Fell to facilitate development
T013	Tamarisk (<i>Tamarix</i>)	3	200		Good	Fair	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 2.4m. Area: 18 sq m.	Fell to facilitate development
T014	Judas tree (<i>Cercis siliquastrum</i>)	4	2 stems: 50(avg)	N:2 E:3 S:2 W:3	Good	Fair	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 0.9m. Area: 3 sq m.	Fell to facilitate development
T015	Canary palm (<i>Phoenix canariensis</i>)	8	150		Good	Good	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.8m. Area: 10 sq m.	Fell to facilitate development
T016	Holly (<i>Ilex sp.</i>)	8	3 stems: 100, 50, 80		Good	Good	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.6m. Area: 8 sq m.	Fell to facilitate development

Appendix 2 – Data Collection: (In accordance with BS 5837 (2012), all tree schedule data has been collected based on the recommendations set out in subsection 4.4 of BS 5837)

Tree No.	Species	Height (m)	Stem diameter(s) (mm)	Spread	Physiological Cond	Structural Cond	Life Stage	Survey Notes	Rem. Contrib.	Retention Category	RPA	Recommendations
T017	Camellia sp. (<i>Camellia sp.</i>)	4	150	N:2 E:3 S:2 W:3	Good	Good	Semi Mature	Large shrub not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.8m. Area: 10 sq m.	Fell to facilitate development
T018	Rhododendron (<i>Rhododendron ponticum</i>)	4	200	N:2.5 E:2.5 S:2.5 W:2.5	Good	Good	Semi Mature	Large shrub not easily seen from public viewpoints.	20+ Years	C1	Radius: 2.4m. Area: 18 sq m.	Fell to facilitate development
T019	West Himalayan birch (<i>Betula utilis</i> 'Jacquemontii')	10	300	N:5 E:4 S:3 W:3	Good	Fair	Early Mature	Offsite tree with some stem defects visible. Provides useful boundary cover.	20+ Years	C1	Radius: 3.6m. Area: 41 sq m.	Prune back lateral secondary and tertiary branches overhanging the site to provide 1-2m clearance from the new structure
T020	West Himalayan birch (<i>Betula utilis</i> 'Jacquemontii')	9	250	N:3 E:4 S:3 W:2	Good	Fair	Early Mature	Offsite tree with some stem defects visible. Suppressed by adjacent tree. Provides useful boundary cover.	20+ Years	C1	Radius: 3.0m. Area: 28 sq m.	
T021	Willow (<i>Salix sp.</i>)	5	50	N:1 E:1 S:1 W:1	Dead	Poor	Young	Dead	Dead	U	Radius: 0.6m. Area: 1 sq m.	Fell for management
T022	Holly (<i>Ilex sp.</i>)	8	100		Good	Good	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.2m. Area: 5 sq m.	

Appendix 2 – Data Collection: (In accordance with BS 5837 (2012), all tree schedule data has been collected based on the recommendations set out in subsection 4.4 of BS 5837)

Tree No.	Species	Height (m)	Stem diameter(s) (mm)	Spread	Physiological Cond	Structural Cond	Life Stage	Survey Notes	Rem. Contrib.	Retention Category	RPA	Recommendations
G023	Mixed shrubs (<i>Mixed shrubs</i>)	3	1 stems		Good	Fair	Semi Mature	Provides useful landscape cover.	10+ Years	C1	Area: 56 sq m.	Fell to facilitate development
G024	Yew (<i>Taxus sp.</i>)	2	50		Good	Fair	Semi Mature	Provides useful boundary cover. Regularly clipped hedge.	20+ Years	C1	Area: 59 sq m.	Remove part to facilitate cycle store
T025	Chusan palm (<i>Trachycarpus fortunei</i>)	8	4 stems: 50, 50, 50, 100		Good	Fair	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.6m. Area: 8 sq m.	
T026	Griselinia (<i>Griselinia sp.</i>)	3	80	N:1.5 E:1.5 S:1.5 W:1.5	Good	Good	Semi Mature	Large shrub not easily seen from public viewpoints.	20+ Years	C1	Radius: 1.0m. Area: 3 sq m.	
G027	Mixed shrubs (<i>Mixed shrubs</i>)	3	100		Good	Fair	Semi Mature	Provides useful landscape cover.	20+ Years	C1	Area: 336 sq m.	
T028	Apple (<i>Malus sp.</i>)	4	200		Fair	Fair	Semi Mature	Small tree not easily seen from public viewpoints.	20+ Years	C1	Radius: 2.4m. Area: 18 sq m.	
T029	Bay tree (<i>Laurus nobilis</i>)	5	6 stems: 150(avg)		Good	Fair	Early Mature	Regularly clipped	20+ Years	C1	Radius: 4.4m. Area: 61 sq m.	

Appendix 2 - Data Collection Cont'd: Explanatory notes

The site data columns and abbreviations: The relevant tree data was collected and recorded as described in the table below:

Tree no/feature: The following categories are assigned appropriately to each landscape feature: T=(tree); G=(group); H=(hedge); C=(coppiced); M=(multi-stemmed); P=(pollard); Sh=(shrubs); S=(stump) or W=(woodland).

Species: Species identification is based on visual observations. Where there is some doubt over tree identity, sp is noted after the genus name in the botanical names section to indicate that the species cannot be reliably identified at the time of the survey. Where there is more than one species in a group, only the most frequent are noted and not all the species present, may be listed. The tree botanical names surveyed on this site are listed in column 2.

Height: Height is estimated to provide an indication of the size of the tree.

Stem diameter: Stem or trunk diameter is estimated or measured and recorded in 2.5cm increments as advised in BS 5837 Table D1. It is measured with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk, or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837. The RPAs given below have been used for single stem trees and the equivalent resultant combined stem diameter for multi-stemmed trees.

Branch height and crown spreads: Where crown accuracy varies from site observations and the original topographical survey, new measurements of the crown may be taken and illustrated on the plan as a crown amendment. These are taken in the context of the development proposal where it is considered there may be encroachment from the development. For example, it may only be necessary to record the measurement of one side of the canopy where it overhangs the site, or where there is likely to be some kind of impact to branches/crown of the tree from development proposals. If there are any significant trees missing from the original topographical survey, their positions are estimated and branch spread is taken as a minimum at the four cardinal points, to derive a representation of the crown. Also, where it is considered appropriate, existing height above ground level of: 1) first significant branch and direction of growth (e.g. 2.4-N); 2) canopy will be recorded to inform on ground clearance where access issues may be a concern.

Tree condition: The tree condition is represented by the surveyor's initial visual observations of its health and/or structural integrity. These are separated into the following subcategories:

Physiological condition (P)	Description
Good	Appears to be healthy and have good vitality.
Fair	Generally, in good health but with visible signs of decline or reduced vitality.
Poor	Obviously in poor health and significant decline.
Dead	Dead, or very little live growth.

Appendix 2 - Data Collection Cont'd: Explanatory notes

Structural condition (S)	Description
Good	No significant structural defects/weaknesses.
Fair	Some visible defects but no significant hazards/weaknesses.
Poor	Significant defects/weaknesses or dangerous/potentially dangerous condition.

Life stage: For the purposes of this report the following life stages are recorded as one of seven categories below. Age class is indicative and will vary between species:

LIFE STAGE	DEFINITION
Newly planted	Very young, newly planted trees at least within the last 5 years.
Young	Small establishing tree in its youngest years that could be transplanted with specialist equipment, i.e. less than 150mm in diameter at 1.5m.
Semi-mature	An established tree, but with some growth to make before reaching its potential maximum size. A tree within its first third of lifespan.
Early mature	A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread. A tree in the second third of life span.
Mature	A mature specimen with limited potential for any significant increase in size, even if healthy. A tree within its final third of expected lifespan.
Over mature	A senescent (declining/degradation) or moribund specimen of low vigour within its final third of expected lifespan. Possibly also containing sufficient structural defects with safety and/or duty of care implications.
Veteran	Specimens exhibiting features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.
Ancient	A tree which is remarkably old for its species.

General observations: Only relevant features such as tree physiology, structural condition, decay and crown or branch structure that may impact on the proposed development are recorded. If there are no notes, then the presumption should be that no relevant features were observed.

Remaining contribution: This is broadly interpreted as <10 years, 10+ years, 20+ years, or 40+ years to provide some indication of a tree's potential for future contribution to its locality.

BS retention category: Each tree is placed into a relevant coloured category based on their quality and contribution they offer in terms of their arboricultural, landscape or cultural values. This assessment is based on the BS5837 Table 1 cascade chart for tree quality assessment which is summarised in paragraph 2.3 of this report.

Appendix 2 - Data Collection Cont'd: Explanatory notes

RPA measurements: For single stem trees, the RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods set out in paragraph 4.6 of BS5837 recommendations will be used. In all cases, the stem diameter(s) will be measured in accordance with Annex C and Annex D of that document. The calculated RPA for each tree will be capped to 707 m².

Recommendations: Any necessary work requirements to implement the development proposal or for safety concerns are recorded in this column.

Future tree safety inspections: My assessment of the trees was carried out on the basis that a re-inspection would be carried out within a year of the assessment visit and my advice on tree condition must be reviewed annually from the date of that visit.

Appendix 3 – Arboricultural Method Statement

1. Introduction

- 1.1 **Purpose of this Arboricultural Method Statement:** This Arboricultural Method Statement (AMS) has been produced in line with *BS 5837 2012: Trees in relation to design, demolition and construction-Recommendations* to aid the successful retention of the trees adjacent to the proposed development at 26 Wittering Road, Hayling Island, PO11 9SB
- 1.2 **Scope of statement:** This document sets out the methodology for all proposed works that affect trees on and adjacent to the site. Compliance with this method statement will be a requirement of all relevant contracts associated with the development proposals. Copies of this document will be available on site for inspection.
- 1.3 **Relevant plan information:** For details of the trees to be retained and location and types of special protection methods, reference should be made to the tree protection plan WTP1. A copy of which should be displayed prominently on site.

2. Supervision and monitoring

- 2.1 **Responsibilities:** It will be the Project Manager/builder's responsibility to ensure that the details of this method statement are known and understood by all site personnel. A copy must be always kept on site, and the site manager must brief all personnel who could have an impact on the specific tree protection requirements. This should be a part of the site induction procedures and written into appropriate site management documents. If appropriate, the builder should instruct an arboriculturist to comply with any necessary planning conditions relating to pre-commencement meetings and/or agree protection with ongoing supervision requirements sanctioned by the LPA.
 - 2.2 **Phase 1 (Establishment of tree protection measures):** A pre-commencement meeting must be held on site before any of the site clearance or construction works start. This must be attended by the contractor's site manager or agent, the project arboriculturist and (if available) the tree officer. The methods of tree protection outlined in this report must be fully discussed at this meeting so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications must be recorded and circulated to all parties in writing (see section 4.2 below). It may be appropriate for the tree surgery contractor to attend this meeting.
 - 2.3 **Phase 2 (special precautions during construction):** All the retained trees will be protected from damage using barriers (fencing and ground protection). Additionally, in the precautionary areas shown on the tree protection plan, special precautions relating to their management will be required. All these protective measures are shown on the plan WTP1 and explained within the examples provided in the tree protection guidance section below.
- ### 3. Specific tree protection issues on this site
- 3.1 **Tree pruning or removals:** All works to trees identified to facilitate the development proposal (as set out in Appendix 2 of the tree schedule) will be undertaken before the construction works commence on site.

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- 3.2 **Protective fencing:** Temporary tree protective fencing is proposed for the retained trees. This will be erected at the locations shown on the tree protection plan WTP1. It will be to the BS5837:2012 section 6.2 recommendations i.e. braced preformed galvanised steel mesh panels (Heras' or similar). It will be installed prior to the commencement of any development related activity and retained at the locations shown on until construction is completed. It may only be moved or removed with consent from the LPA. Provided that the fencing is properly specified, installed and maintained, there is unlikely to be any significant adverse effects on the health or amenity value of these trees.
- 3.3 **Installation of new surfacing:** Trees T009, T010, T011, T019 and T020 may be affected by the installation of the new carport base and footpath along the southern boundary. I have shown the minimum extent of 'low invasive' type surfacing required to successfully retain these trees on the plan WTP1 included in Appendix 1 and the extent of this is based on their BS derived RPAs. The cellular system will act as ground protection for the parts of the RPAs that are outside the protective barriers and so will need to be installed before any other construction activity occurs on site. The use of a cellular confinement system is suggested in BS 5837:2012 as one appropriate way to achieve hard surfacing over tree roots and the following guidance is based on this principle. However, before implementation the following specifications and guidance will need to be reviewed by an engineering specialist, to ensure that the final construction is appropriate from an engineering viewpoint and suitable for the purpose intended.
- **Installation:** An installation video for a proprietary cellular confinement system is available to view at <https://tinyurl.com/bbs7tsf5>. Generally, any required changes in topography will be accomplished by the use of fill materials rather than cutting into the existing site levels, which could have a significant impact on tree health. Suitable fill materials include uncompacted crushed stone or sharp sand. In this instance, the removal of the top layer of vegetation to a depth of 50mm (to provide a flat surface for the installation of the cellular subbase) is unlikely to encounter or damage any tree roots. Any additional excavation will need to be assessed by an arboriculturist, in consultation with the LPA's Tree Officer. However, in the event that roots may need to be cut, those smaller than 25mm diameter may be pruned back, preferably to a side junction, using a cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability.
 - **Subbase and final wearing courses:** Once a level surface has been formed, the cellular system will be installed on top of the existing soil, with no compaction of its structure. The cell infill material will be crushed aggregate (typically 20-40mm, clean angular stone), with no fines, as per the manufacturer's specification. A temporary wearing course of tarmac and/or aggregate, separated by a geotextile membrane is likely to be the most appropriate way of providing a suitable ground protection/working surface during the clearance and construction phase of the project. At the final stages of the construction, the temporary wearing course will be removed (under arboricultural supervision), and the final surfacing will be installed. Suitable final wearing courses

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include resin bound gravel, paving slabs, washed gravel or block pavements set on a sand base, although other surfacing may be appropriate after consultation with an arboriculturist.

- **Edge retention:** The use of non-invasive ground contact structures (including proprietary edging products, gabions, wooden boards or railway sleepers) is suggested in BS 5837:2012 as effective edge supports in RPAs, to be secured by metal rods, track or road pins or wooden pegs. This, or a similar approach (negating the need for excessive ground disturbance within RPAs) will be used to minimise any adverse risk of impact on trees.
- **Illustrative specifications:** Final drawings will be prepared by the project engineer. These will be based on the illustrative manufacturers specifications for special surfacing included in Appendix 3, or an alternative 'low invasive' construction technique. These definitive plans can be secured by way of a suitably worded planning condition and approved by the LPA before any construction activity occurs on site.

- 3.4 **Ground protection measures:** If the proposed surfacing cannot be installed before construction works start, then alternative ground protection measures must be installed along the southern boundary to safeguard RPAs. The guidance for ground protection design is included in Appendix 3 and an installation video for proprietary ground protection available to view at <https://tinyurl.com/3nk2c3cw>. Again, once the ground protection has been positioned, it will stay in situ for the duration of the construction phase, unless previously agreed with the project arboricultural consultant or LPA Tree Officer.
- 3.5 **Removal of timber sheds:** There are several timber structures within the existing RPAs of trees T008, T009, T010 and T011 which will need to be carefully removed without causing harm to both canopies and roots. Where feasible, only hand tools should be used to remove the upper parts of the structures to minimise disturbance. In this case, the subbase will be left in situ to avoid unnecessary root disturbance and provide a new base for the new surfacing/car port structure.
- 3.6 **Structures within RPAs:** Any work in the RPAs of T011 and T019 must be done with care so the new house and car-port foundations are proposed to be constructed using low-impact methods. The design principles of such foundations are set out within the BS5837:2012 recommendations in relation to minor structures (clause 7.5.3, p.27) and the tree protection guidance notes below.
- 3.7 **Hand digging precautions:** Any hand digging works close to trees must be done in accordance with the BS5837:2012 recommendations in relation to hand digging (clauses 7.2.1-7.2.4) and the tree protection guidance notes below. The following hand digging guidance should be followed when installing the structure to minimise harm to the adjacent trees:
- a) All excavation in RPAs must be supervised and carried out carefully using hand tools, taking care not to damage the bark and wood of any roots. Specialist tools for removing

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soil around roots using compressed air may be an appropriate alternative to hand digging, if available.

- b) 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.
- c) 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.
- d) Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or over 25 mm diameter should be severed only following consultation with the project arboriculturist, as such roots might be essential to the tree's health and stability.
- e) Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

3.8 **Storage areas outside the RPA:** Before construction begins on site, it is important to identify the exact areas outside the RPA that minimise chemical pollution and damage from construction materials. Materials should not be handled or stored within the RPAs of retained trees; the load exerted can result in soil compaction and leachate from spill can be toxic to trees.

3.9 **Services:** Where possible, the existing services will be used to avoid disruption within RPAs. Any new service installation works are anticipated outside the RPAs of retained trees. However, if minor encroachment is required, the works must be undertaken following the guidance notes below. If this changes for any reason, I advise that these matters are considered at an early stage and agreed with the LPA prior to the work commencing.

3.10 **Site access/working space:** Construction vehicles need space to work, so trees can be compromised once construction starts. To successfully prevent damage to trees during and after the development activity, it will be important to consider their proximity to working areas, storage of machinery and movement in, out and around the site. It is not just important to consider the impact to the ground and surrounding roots, but overhanging branches or stems need to be considered. Working this out at the earliest stage possible is crucial to minimise harm to important trees.

3.11 **Reinstatement/landscaping works:** No heavy machinery should be driven over unprotected ground and materials must be stored outside RPAs. The tree protective fencing can only be removed with the agreement of the project arboriculturist and may have to be reinstalled during a break in operations. Any soil removal or replacement, excavations for hard

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landscaping or installation of any structures including lighting, water, electric gates etc must be approved by the project arboriculturist. Unwanted vegetation can be removed using handheld tools to avoid damage to the stems of retained trees. Planting holes for new trees or shrubs shall be dug by hand and will be repositioned if woody roots are encountered. For further advice, refer to the tree protection guidance notes below.

4. **Summary of important arboricultural considerations**

4.1 **Review of main requirements:** The following general responsibilities should be known to all parties involved with working on site to ensure that important retained trees on site are sufficiently protected:

- All tree protection details set out on the approved tree protection plan should be agreed at the pre-commencement meeting and recorded by the project arboriculturist for all parties to consider.
- Protective barriers must be regarded as sacrosanct and must only be moved under direct supervision of the LPA or project arboriculturist to enable the undertaking of works within the RPA of the trees, as set out in this AMS, and approved in writing by the LPA. It is of paramount importance the fencing is repositioned correctly after any agreed operations.
- All construction machinery engaged in site clearance work should work from outside the RPAs.
- No materials, chemicals, machinery or vehicles must be stored within the RPAs as defined on the tree protection plan WTP1 and identified on site by protective fencing.
- Ground protection must not be lifted or removed without prior consultation with the LPA or project arboriculturist.
- Damage caused to protective fencing or ground protection must be reported to the site supervisor and the project arboriculturist to ensure appropriate repair.
- Any damage to retained trees must be reported without delay to the site supervisor, the LPA and the project arboriculturist so appropriate remedial work can take place without delay.
- No fires will be lit on site.
- Notice boards, telephone cables or any other signage or services are not to be attached to any part of retained trees.

4.2 **Site monitoring checklist:** The recommendation in BS5837:2012 is that wherever trees on or adjacent to a site have been identified within the tree protection plan for protective measures, there should be an auditable system of arboricultural monitoring. This should extend to arboricultural supervision whenever construction and development is to take place within or adjacent to any RPA. On this basis, the following site monitoring checklist is available to use for all pre-commencement and site supervision visits. After each visit, it should be circulated to all relevant parties and kept as a record to demonstrate that all site operations have been compliant with the approved tree protection requirements, and to satisfy the discharge of planning conditions.

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- 4.3 **Tree protective guidance notes:** The specific tree protection requirements set out below are necessary to minimise harm to retained trees. These must be informed by the following tree protection guidance notes below if tree harm is to be minimised.

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Pre-commencement checklist/supervision visits			
Site address		Date	
		Planning reference	
PRESENT		REPRESENTING	
Pre-commencement	Compliant Y/N	Action (If appropriate refer to additional notes)	
Acceptable demolition/site clearance works			
Tree works undertaken/additional requirements			
Method statement/tree protection plan available on site			
Suitable locations for welfare and material storage etc			
Suitable space available for vehicle access etc			
Services/soakaway locations agreed			
Tree protection/precautions	Compliant Y/N	Action (If appropriate refer to additional notes)	
Protective fencing			
Ground protection			
Temporary surfacing			
New surfacing/reinstatement of existing			
Structures in RPAs			
Excavations/level changes in RPAs			
Soft/hard landscaping			
Soil amelioration requirements			

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Outcome of meeting	Y/N	Action (If appropriate refer to additional notes)
Can the development lawfully start/continue?		
Are changes required on site to comply with approved tree protection plan?		

Date: / /	Name	Signature	Position

Additional notes	Agreed actions

General Principles

Objective: This guidance sets out the general principles that must be followed when working in Root Protection Areas (RPAs). Before work starts on site, the purpose of this guidance is to demonstrate to the LPA 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.

RPA description: 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 advice. 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.

Use of this guidance: Anyone working within an RPA must follow this guidance if important trees are to remain unharmed. They must take care to minimise excavation into existing soil levels and limit any fill or covering that may affect soil permeability.

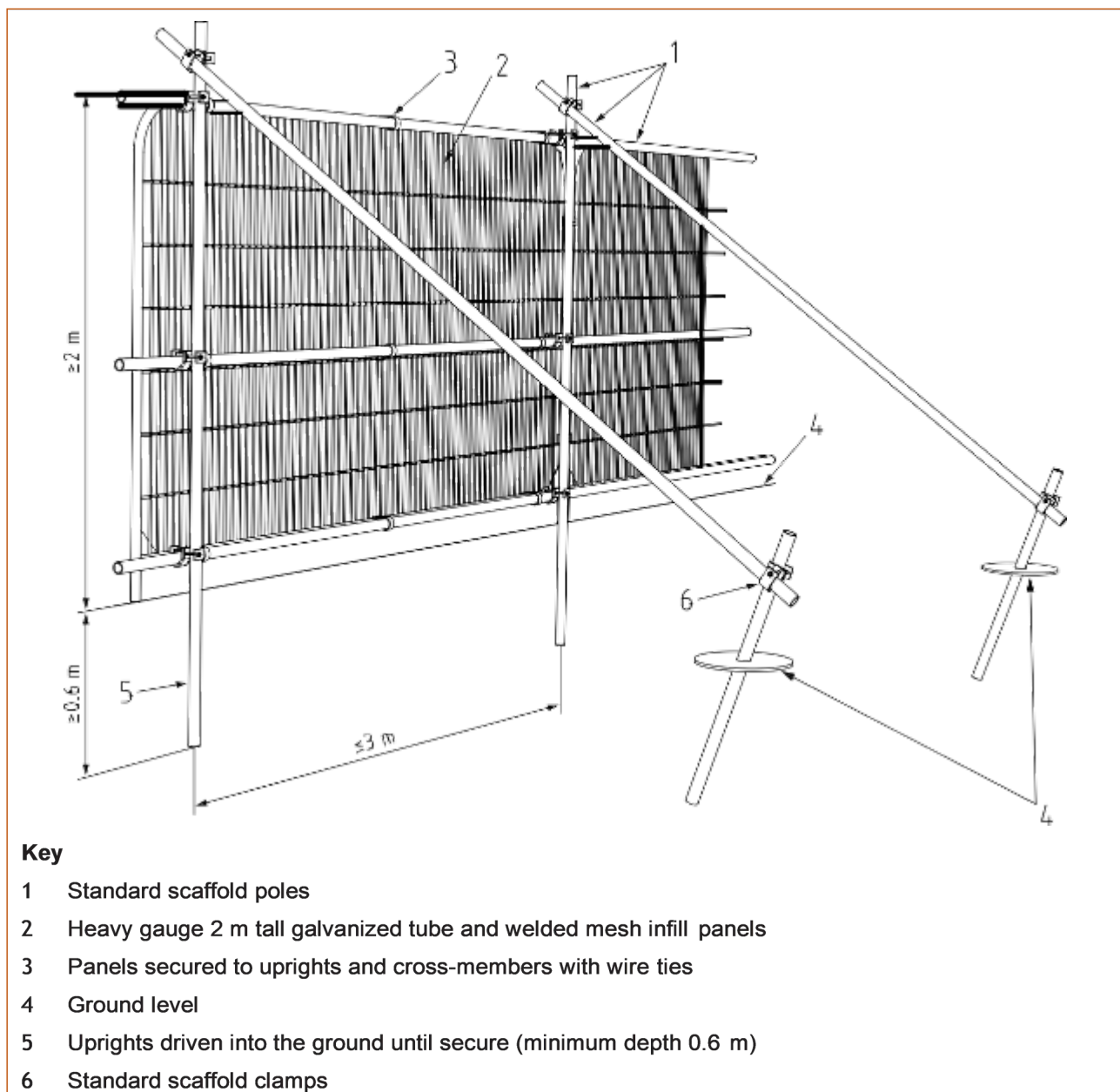
This advice should always be read in conjunction with the tree protection plan (TPP) illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and intended to be interpreted 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.

Preventing adverse impact to the RPA: 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. Any further precautions required to minimise harm to trees should be undertaken using the relevant tree protection guidance in the following pages.

Arboricultural supervision: Qualified arboricultural supervision is essential to minimise the risk of harm to trees. Ongoing work must be inspected regularly and, on completion, must be signed off by the arboriculturist to confirm compliance by the contractor and to sign off relevant Planning Conditions. In the context of this guidance, an appropriate supervising officer would normally be an arboriculturist.

Tree protective barriers

Installing Barriers: Tree Protective barriers must be fit for purpose, and once installed must not be moved or removed without consent from the LPA or project arboriculturist. If it is absolutely necessary for any adjustments, they should be under direct supervision of the project Arboriculturist to maintain the Root Protection Area (RPA) of each tree. No materials, chemicals, machinery or vehicles must be stored within the protected area as defined on the Tree Protection Plan. On this site, all exposed rooting areas should be protected by barriers (while vulnerable to damage), in accordance with BS 5837 figures 2 and 3 below until there is no risk of damage from the development activity. This work should be subject to arboricultural supervision.

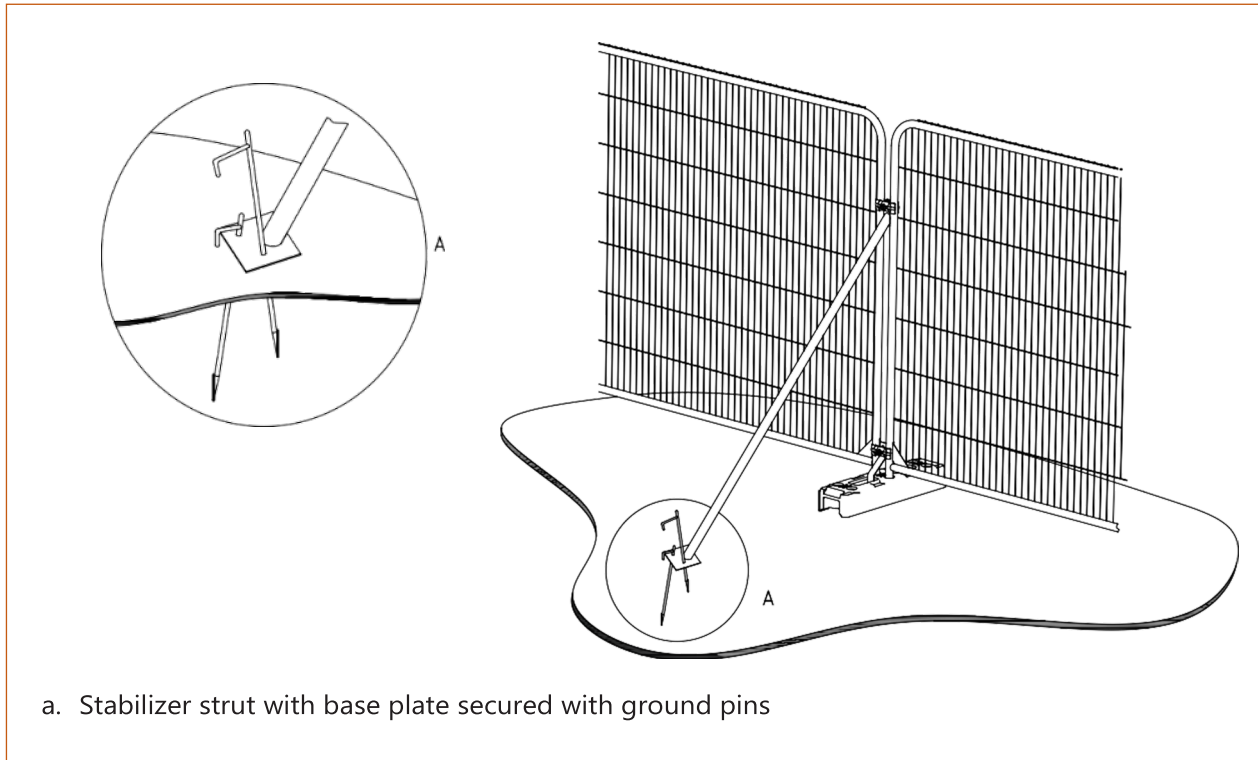
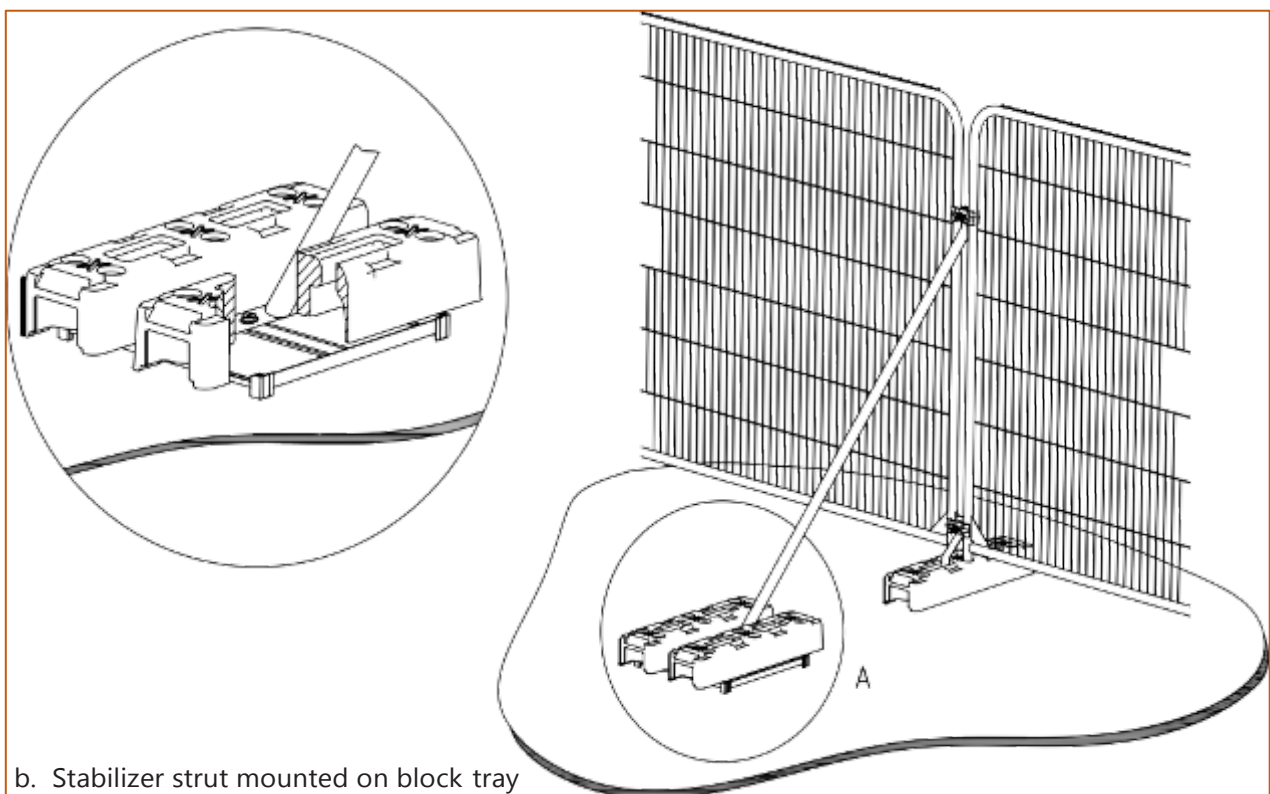


Extract from BS5837: 2012 Figure 2: Example of above-ground stabilizing systems

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Examples of tailored protective barriers: A range of methods can be used to protect the trunks and underlying soil but whatever the choice of method, the end result must be fit for purpose to prevent the protected area from being breached by the construction activities.

Extract from BS5837: 2012 Figure 3: Example of above-ground stabilizing systems



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Picture 1: All barriers should be labelled to keep working activities outside the Construction Exclusion Zones (CEZs).



Picture 2: Scaffolding supports and board coverings erected around the trunks of trees can provide suitable protection against traffic turning into the site.



Picture 3: Temporary barriers are useful around individual trees where construction activities only occur during a short period.



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Pictures 4 & 5: Wooden boards carefully secured around the trunks can provide good protection where access is limited.

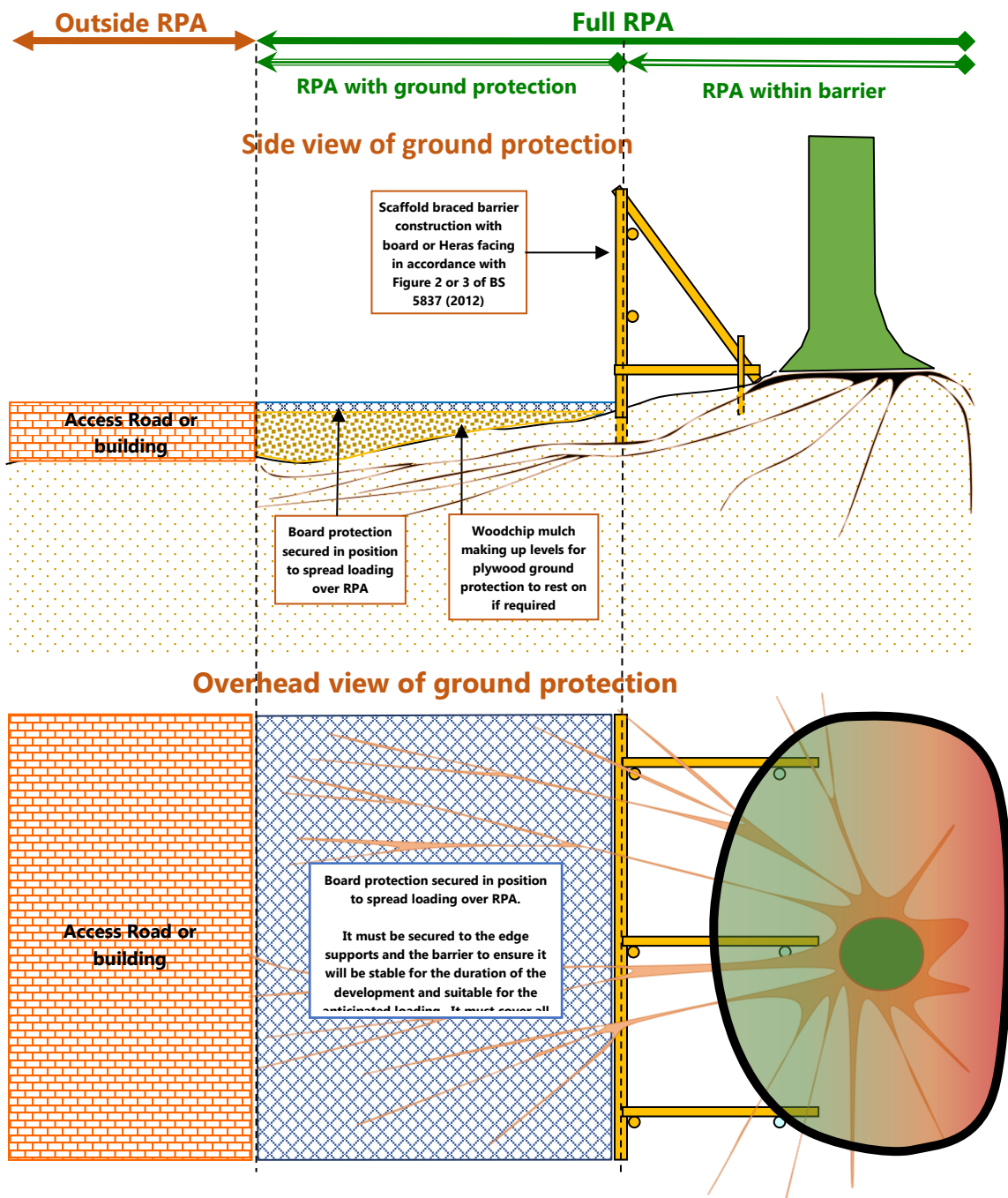


Picture 6: Where trees are off site, or public access is required through the work zone, boxing around the tree may be feasible.

Ground protection

Protecting the ground: Where it is not practical to protect the trees using a vertical barrier, the soil can be protected with ground protection. This allows improved access next to trees, preventing damage to the roots outside the protection of the barrier. The following illustration and examples provide some guidance but ultimately any protection must be fit for purpose.

Illustration 1 - Ground protection in RPAs



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Examples of tailored ground protection: Many methods can be used, including the retention of existing surfacing or structures that already protect the soil, installing new protection, or a combination of both. Whatever the choice of method, the end result must be fit for purpose to protect the underlying soil (rooting environment).



Pictures 1 and 2: Mulch applied underneath plyboards can provide good protection for foot traffic. Where ground protection is required to fit around light structures or new extensions, this can be constructed using plyboard cut to size



Pictures 3 and 4: Ground protection can be erected on scaffold platforms or with temporary ground mats that can be easily lifted once the development has been completed

Surfacing



Installing new surfacing: 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.

Key recommendations

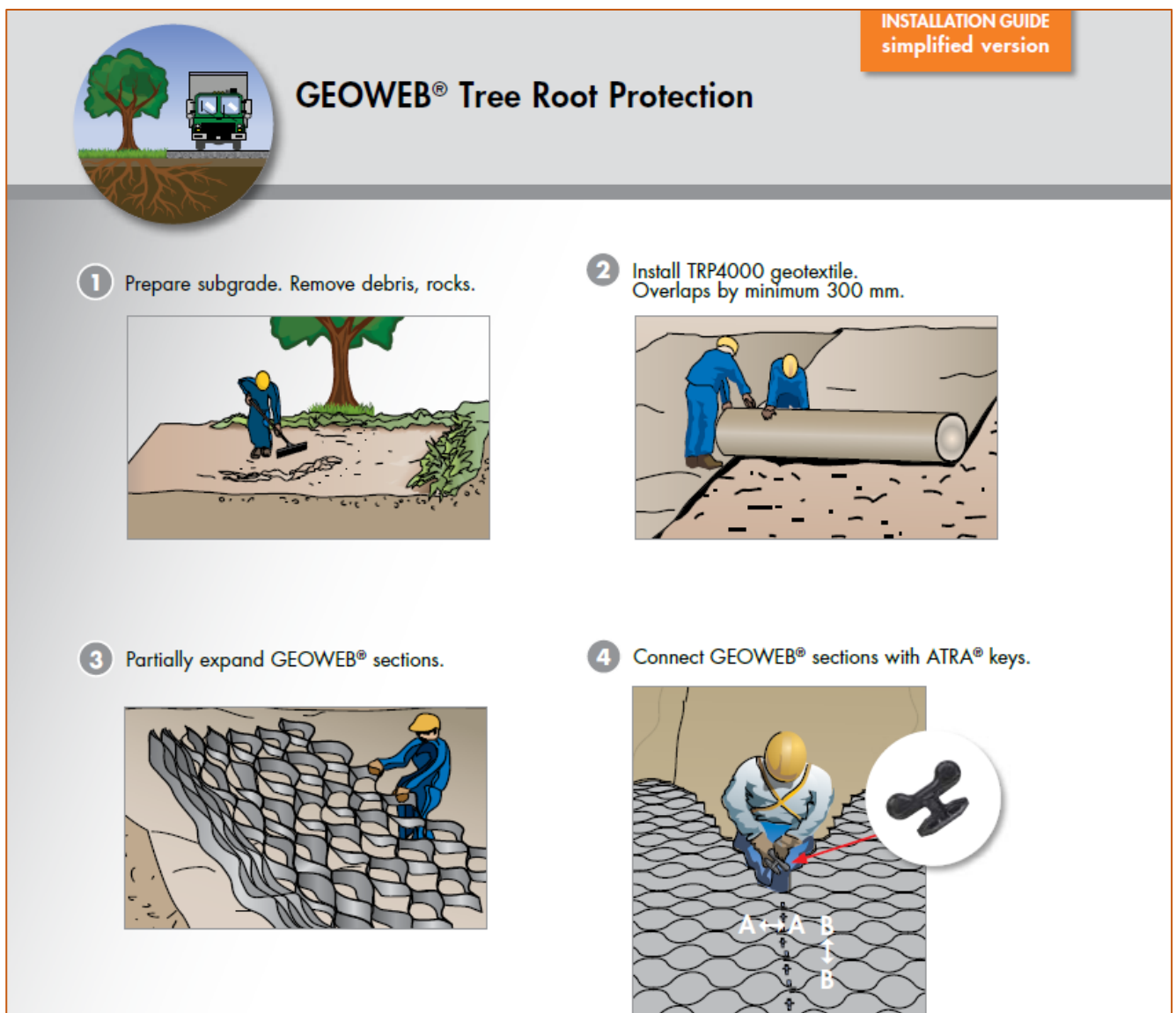
- 1) Due to the potential risk of harm to trees and their roots, careful working procedures are required to ensure that trees are suitably protected when the installation works are carried out.
- 2) The installation of cellular confinement systems should be directed by a project-specific arboricultural method statement which should list any aspect of the proposed construction that could harm adjacent trees and detail any appropriate mitigation.
- 3) Tree roots can be directly damaged as the ground is levelled in advance of laying down a cellular confinement system and so it is recommended that this part of the process is carried out using hand tools under arboricultural supervision. The use of a tracked excavator within a tree's root protection area should only be permitted if it is supervised by a suitably qualified arboriculturist.
- 4) The cellular confinement system must be filled with clean angular stone that contains no fine material. To protect the geocell membrane it is advised that geocells are overfilled by a minimum

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of 25mm. In order to function effectively it is crucial that all of the cells are fully expanded and filled to capacity. Therefore, if there is insufficient space for a cell to be expanded it should be cut away and discarded.

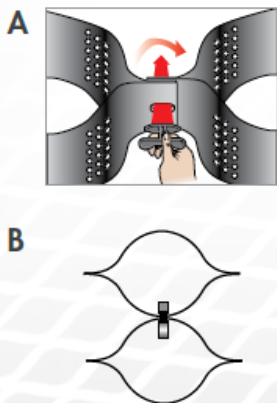
- 5) When cellular confinement systems are installed within tree root zones it is important that the wearing course is permeable so that air and water can reach the soil beneath. Systems should be put in place to ensure that the surface is regularly cleaned so that it maintains its porosity.
- 6) The means to successfully prevent ground compaction during construction need to be planned from the conceptual stages of a building project. It may be that the no-dig surface needs to be installed and used during construction, and in other situations the ground may need to be protected until it is time to install the cellular confinement system. Therefore, the project arboriculturist needs to work with the architect, the project engineer, and the building contractor during the planning stages as well as during the construction of the surface.

The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist. The following illustrative guide (provided by Greenfix surfacing specialists) sets out the principles of installing a low impact surfacing product:

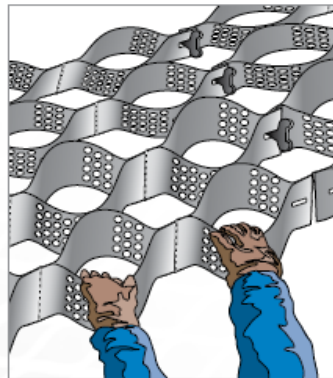


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- 5 Connect side to side (A) and end to end (B).



- 6 Fully expand GEOWEB® sections.



IMPORTANT NOTE:

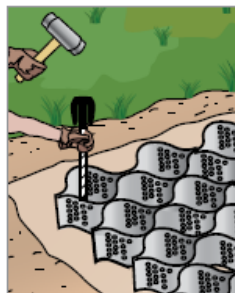
The simplified installation guide provided by Presto GEOSYSTEMS® is intended as a general guideline only. The contractor should follow contract plans and specifications and refer to detailed installation guidelines for more information.

- 7 Hold sections open. Use Options A, B, C or D.

A T-Bars



B ATRA® anchors



C Wood Stakes



D Infill Select Cells



- 8 Infill GEOWEB® cells.

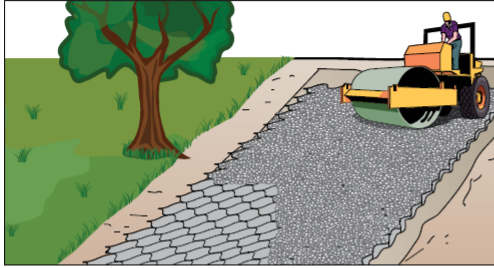


- 9 Spread Infill ensuring a 25 mm overfill at all times.

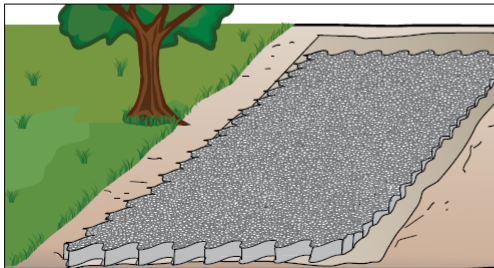


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- 10 If required, use a 4t smooth, non-vibrating roller on overfilled GEOWEB® system. Refill as needed to ensure a 25 mm overfill.



- 11 Surface option ready to install according to specification.



info@greenfix.co.uk
 tel. 01608 666027
www.greenfix.co.uk

Geoweb infill material for Tree Root Protection
Clean Angular Stone 4-20mm

Specification for open graded infill material for Geoweb cellular confinement within tree root protection applications. The no fines material is to ensure high ratio void space which corresponds with ideal soil void ratios for tree root health.

Material to BS EN13242 or BS EN12620. Crushed gravel is not permitted.

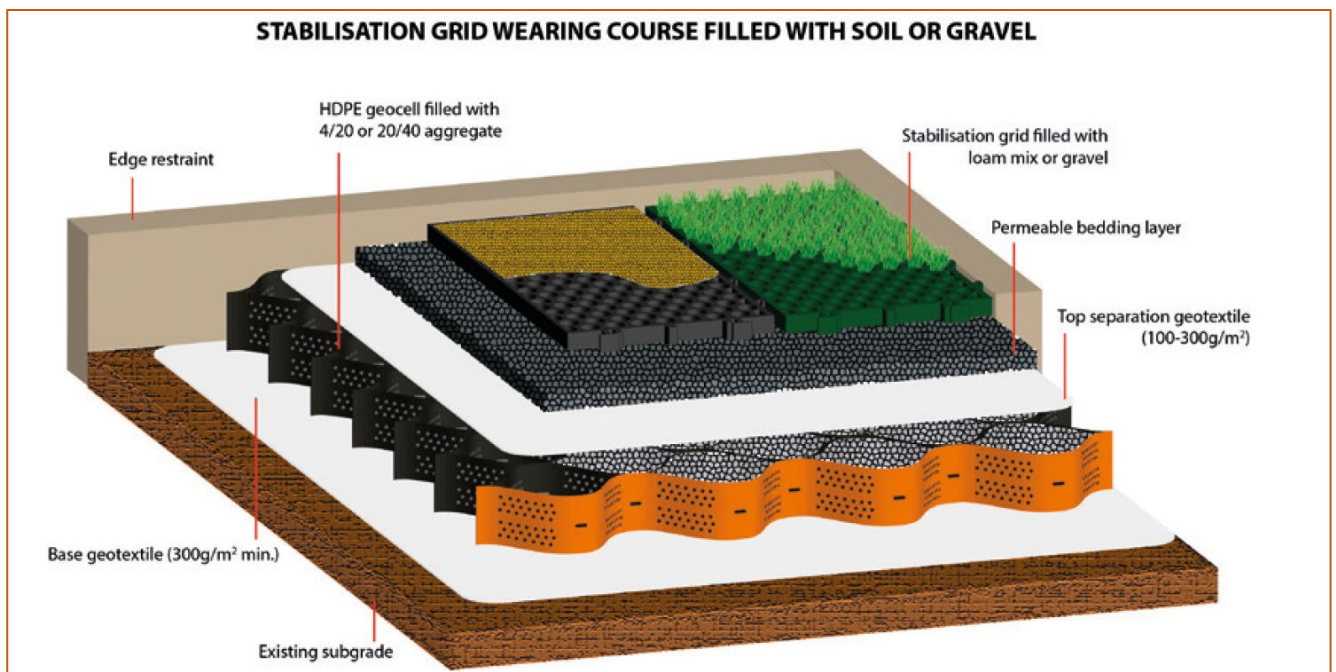
Properties of material	Test	Value
Grading of particle size	BS EN 13242	Grading 4-20mm
Fines Content	BS EN 13242	f ₄
Shape flakiness index	BS EN 13242	F _{4.75}
Resistance to fragmentation	BS EN 13242	LA ₁₀
Resistance to wear	BS EN 13242	M _{10/20}
Water absorption rate BS EN 1097-6:2000 clause 7	BS EN 13242	W _A 4.2
For typical W _A 2% magnesium sulphate soundness	BS EN 13242	M _S 18
Acid soluble sulphate content air-cooled blast furnace slag	BS EN 13242	AS _{0.1}
Acid soluble sulphate content non air cooled blast furnace slag	BS EN 13242	AS _{0.2}
Total sulphur aggregates other than air cooled blast furnace slag	BS EN 13242	<1% by mass
Total sulphur air cooled blast furnace slag	BS EN 13242	<2% by mass

Sieve Size mm	Percentage of 4.75mm passing
40	100
31.5	95 - 100
20	90 - 99
10	25 - 70
4	0 - 15
2	0 - 5
1	-

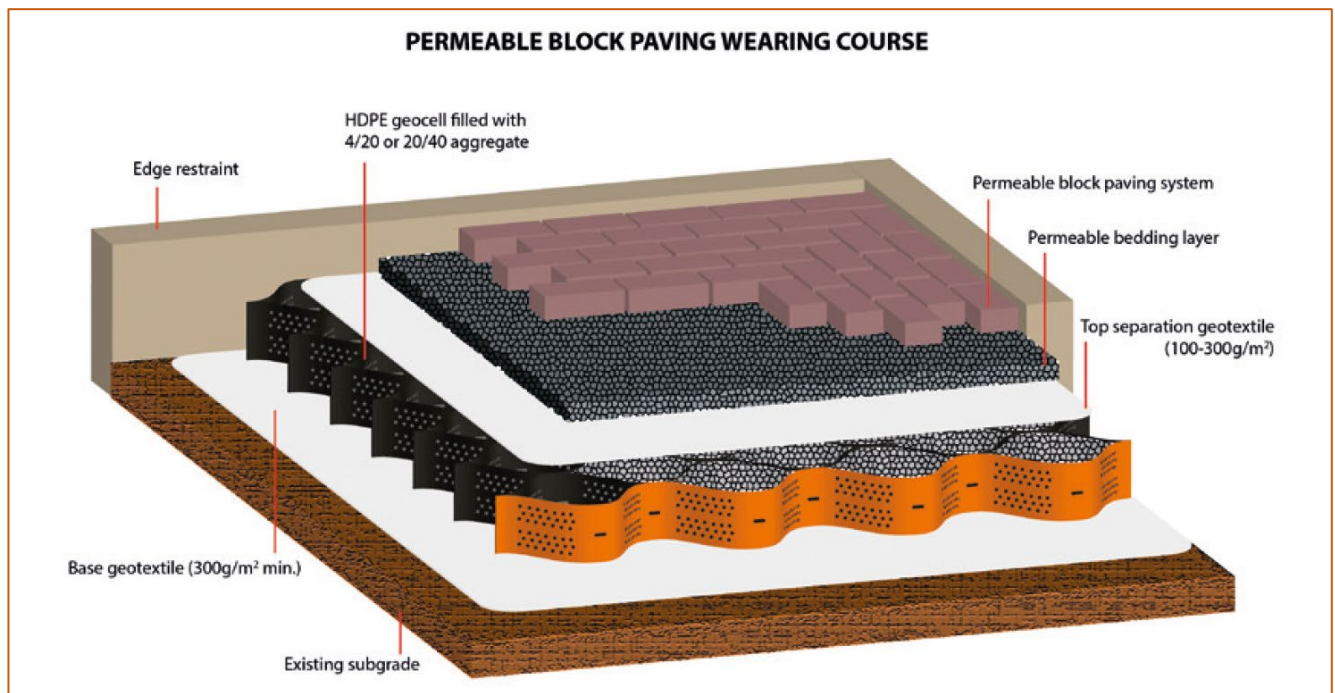
Air cooled blast furnace and steel slag should be free from Dicalcium silicate and iron disintegration in accordance with BS EN 13242:2002, 6.4.2.2 V5
Leaching of materials for blast furnace slag and other recycled materials should meet requirements of the Environmental waste acceptance criteria for inert waste when tested in accordance with BS EN 12457-3
On poor site conditions which require compaction, this should be minimum 4 passes of a smooth wheeled roller at max weight 1000kg/m width without vibration.

For assistance on correct 4–20mm clean angular stone infill specification, please contact Greenfix technical team.

Examples of low impact surfacing design principles below are taken from the Arboricultural Association guide to good practice booklet 'The use of cellular confinement systems near trees' (*Images courtesy of Core LP*).



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Surface edging: 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 impact on trees from the retention structure. Examples of low impact kerbs below are taken from the

	<p>Standard kerbs set on top of concrete-filled geocells</p> <p>If the levels suit, standard kerbstones can be set on top of the geocells. The edge cells can be filled with concrete and the haunchings are above the cellular confinement system. The finish can look very good when this has been carried out properly.</p>
	<p>Small concrete kerbs pegged and set in concrete</p> <p>Where only small load resistance is required narrow concrete kerbstones can be set in concrete at the edge of the geocells, and these can be further stabilised by wooden pegs. This creates an attractive finish that is comparable to standard surface installations.</p>

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Arboricultural Association guide to good practice booklet 'The use of cellular confinement systems near trees' (*Images courtesy of Core LP*).

	<p>Railway sleepers fixed in place</p> <p>An advantage of using railway sleepers is that they are easy to source and quick to install. They are particularly good for temporary access roads because they can be easily removed at the end of the project and re-used.</p>
	<p>Metal or plastic edging strips</p> <p>There is a range of edging products that are designed to retain block paving or to provide a clean edge to landscape areas. These are typically L-shaped edging strips that are secured by being pinned into the ground below <i>[image courtesy of Hauraton Ltd]</i>.</p>

Replacing existing surfacing: Where surfacing already exists, roots are likely to be growing within and below the sub-base structure, 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. In some instances, existing surfacing can be retained and used as a base for new surfacing which is less likely to result in significant excavation, so special precautions are not necessary. However, if large roots already protrude above the proposed sub-base level, then the precautions and procedures must be observed. Once surfacing is removed to the soil below, damage to roots is possible. In this situation, the 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. Removing existing surfacing is a high-risk activity for any adjacent roots and the following guidance **must** be observed:

- 1) Appropriate tools for manually removing debris may include a pneumatic breaker, crowbar, 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 above.

NB: If appropriate, leaving surfacing in place should be considered if its removal may cause excessive root disturbance.

Structures

Installation and removal 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. Where work is required around existing and new structures, the 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. Removing existing structures is a high-risk activity for any adjacent roots and the following guidance **must** be observed:

- a. Appropriate tools for manually removing debris may include a pneumatic breaker, crowbar, 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.
- b. 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.
- c. 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.
- d. Great care must be taken throughout these operations not to damage roots as set out above.

NB: If appropriate, leaving structures in place should be considered if its removal may cause excessive root disturbance.

Minor structures: Bin stores, sheds, decking and other 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 50mm and filling depressions with permeable fill to provide a flat base will normally be acceptable provided no roots greater than 25mm 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 150mm apart, and of a relatively narrow diameter, i.e. not in excess of 150mm, it is unlikely they will cause any significant disturbance to RPAs.

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Large structures 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 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 750mm to establish if there are any significant roots over 25mm in diameter that could be damaged. If



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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 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.

Example of a root bridge system



Factory modular load supporting systems are available from specialist manufacturers that can integrate into many customised situations with trees. These usually consist of adaptable steel lattice constructions, supported on a foundation of screw piles, and can be carefully positioned between the main roots in the RPA. With a low structure height, the system can be implemented with minimal impact and loads of up to 57kN are then absorbed by the structure rather than the roots. Further guidance and information is available from GreenGrid Systems at www.greengridsystems.com and a useful case study showing a beam base for a carport and patio can be found at <https://greengridsystems.com/case-studies/beam-base-for-garage>.

They can also be contacted by email info@greengridsystems.com or by telephone 01962 433460 for further help and guidance.

The actual specification of the structure 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.

Hand digging operations

Excavations within RPAs: All excavation must be carried out carefully using hand tools, 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, such as an air spade excavator (Image below), if available.



All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, fibrous roots should be retained or displaced temporarily beyond the excavation without damage.

Where excavations are required within RPAs, the advice below **must** be followed:

Advice for digging trenches

- All work within RPAs must be carried out by hand under close and recorded arboricultural supervision.
- Machines should not enter protective zones unless there is a suitable existing hard standing.
- Excavation of open trenches by machine is unacceptable within the protective zone. Wherever possible, trenchless techniques should be used.



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d. For trenchless installation of services, the pit excavations for starting and receiving machinery should be located outside the protective zone. The depth of run should be below 600mm. Techniques involving external mole lubrication with materials other than water should be avoided unless precautions are taken to ensure that there is no soil contamination within 600mm of the surface.

e. The broken trench technique combines hand dug sections of trench with trenchless techniques. The open trench is dug by hand with the same precautions as for continuous trenching described below. Open sections of trench should be kept as short as possible and only long enough to allow access for linking to the next section.



f. Continuous trenches should only be used where it is not possible to use either of the above techniques. The objective is to dig by hand and to retain as many roots as possible. Hand digging must be undertaken with great care to retain all roots greater than 25mm and to prevent damage to those retained.



g. Hand tools such as a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, a trowel and brush should be used to clear the soil away from them without damaging the bark. Any roots that need to be removed should be cut cleanly with sharp saw or secateurs 100–200mm behind the final face of the excavation

h. Backfilling should be carried out carefully to avoid direct damage to roots and excessive compaction of the soil around them. Where the finished surface will be hard standing, the backfill material around roots should be a mixture of top soil and a granular fill such as sharp sand to reduce excessive compaction and to secure a local aerated zone. On sites away from hard standing, backfill only with excavated soil.

i. Exposed roots should remain protected from drying out and extremes of temperature by insulating covering such as sacking.



Services: 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 above.

Construction vehicles

Construction vehicles need space to work, so trees can be compromised once demolition or construction starts. To successfully retain trees during and after the development activity, it will be important to consider their proximity to working areas, storage of machinery and movement in, out and around the site. It is not just important to consider the impact to the ground and surrounding roots, but overhanging branches or stems often get overlooked. Working this out at the earliest stage possible is crucial to minimise harm to important trees.



Where vehicles/machinery are required close to trees or within RPAs, the advice below **must** be followed:

Minimising harm from construction vehicles/machinery

- a. Where possible, fixed position cranes should be programmed to automatically avoid retained trees. If that is not possible, operatives should be trained to avoid retained trees as part of their regular tool box talks.
- b. Access for any plant near trees needs to be restricted by protective barriers. However, where branches extend over into the working zones, operatives should be briefed to avoid them and be guided by a banksman where vision is obstructed.



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- c. Loads can be lifted around site where they are close to trees but operatives should be prepared to avoid contact with tree crowns.
- d. Care should be taken to avoid damaging retained trees during the installation and removal of large fixed site cranes.
- e. Space for piling rigs should take account of both ground protection and facilitation pruning requirements to enable the rig to be supported and function properly. Where possible branches should be tied back to minimise pruning. Alternatively, small rigs can be used to keep works beneath the canopy.



Material storage and pollution control

Loose building materials, chemicals and other pollutants that can contaminate the soil must be stored in locations outside the RPAs. If space around the site is limited, materials must be ordered in smaller/less frequent amounts to minimise excessive build-up of unused building materials. Where liquids or powder/granule products are required, precautionary measures of bunding or sealed frameworks should be sufficient to prevent contamination and must be designed so they are fit for purpose. If spillage or leakage occurs, there should be immediate procedures put in place to reduce further risk to the surrounding RPAs. All contributing contaminants must be moved away from the affected RPAs in a way that minimises harm to tree roots and the surrounding soil.



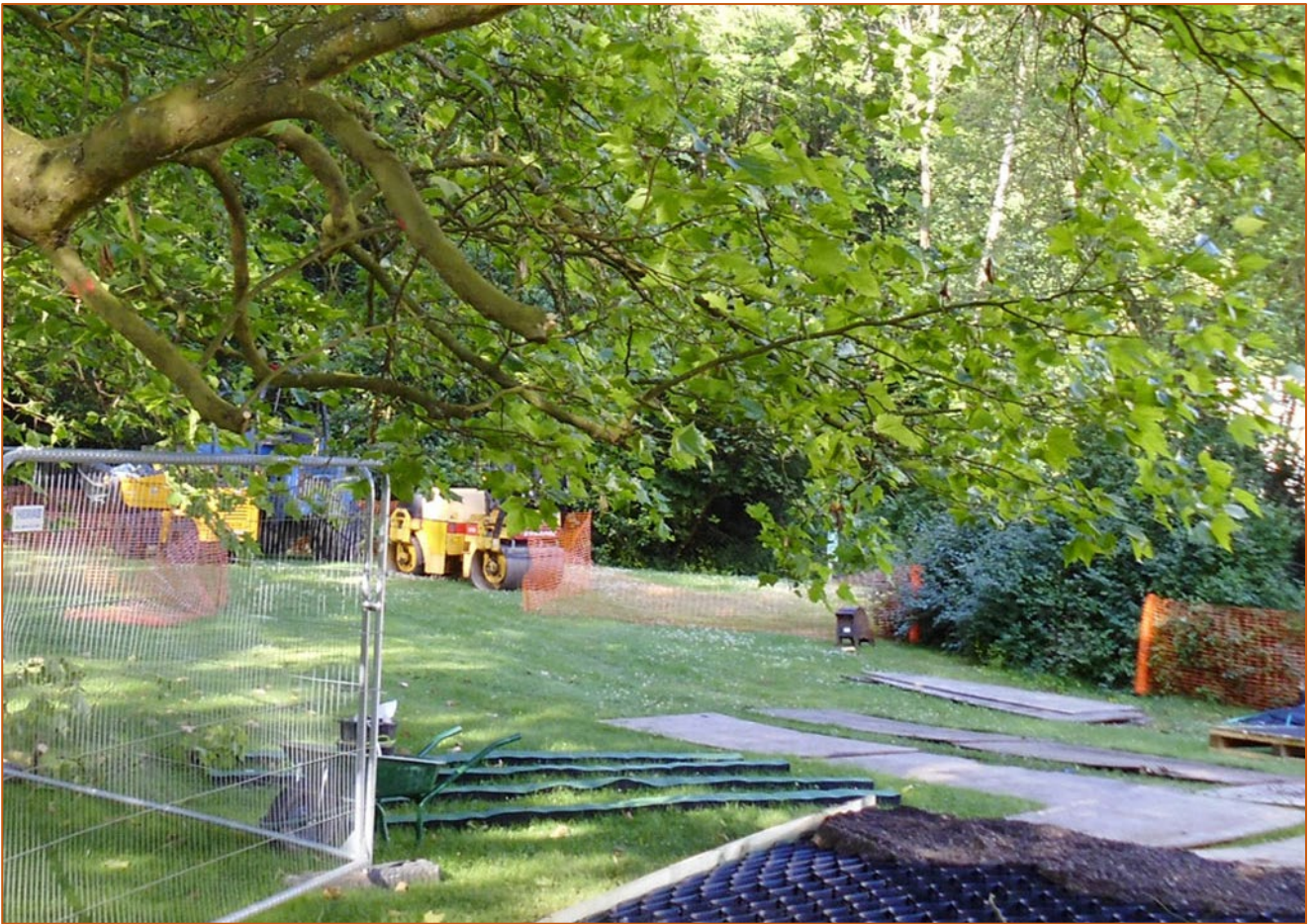
The following points must be adhered to:

Minimising harm from storage of pollutants

- The storage of fuels or toxic materials must be kept outside RPAs
- Emergency spillage kits must be available on site at all times to reduce the risk of accidents to the environment
- Where space is limited, contaminants must be kept safe using tailored containment systems fit for purpose.
- Cement washings must be contained to prevent leaching into the soil within RPAs
- Concrete pouring must be done in a way that ensures all RPAs within influencing distance are adequately protected. Liners should also be used where possible to prevent contamination.



Reinstatement works or landscaping around trees



Reinstatement works or landscaping in RPAs: Reinstatement works, or landscaping is usually the last stage of works and often the most important to minimise harm within RPAs. 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.

Minimising harm from works

- a. No significant excavation or cultivation, especially by rotovators, should occur within RPAs.
- b. 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.
- c. It should be firmed into place but not over compacted in preparation for turfing or careful shrub planting.
- d. 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.
- e. All installations of light systems or other garden improvements that involve trenching works must be undertaken following the hand digging guidance above.

