British Standards 5837:2012 Tree Survey

Arboricultural Impact Assessment,

Arboricultural Method Statement &

Associated Tree Plans



47, The Common, Crich, Derbyshire, DE4 5BH For

Pilkington Architecture Ltd

Report Reference: 260707 47 The Common Crich

AA Tree Surgeons Arboricultural Consultancy

July 2026

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Caveats and limitations:

- AA Tree Surgeons has prepared this report for the sole use of Mr M Hartshorne (Client), their agents or other consultants, in accordance with the agreement under which our services were performed.
- The content of this report is, at least in part, based upon information provided by secondary data sources and on the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from any third party has not been independently verified by AA Tree Surgeons unless otherwise stated in this report.
- When evaluating tree amenity values the Tree Evaluation Method for Preservation Orders (TEMPO) system has been adopted. Although not adopted by all Local Authorities it is an industry recognised system of detailed evaluation.
- This report relates solely to the trees in this schedule, the tree condition and the site assessment on the day of the site survey. No reliance shall be placed on comment(s) the surveyor has made in respect to structural integrity of the tree. Trees are living organisms, subsequently their condition can change over relatively short time periods.
- The findings and recommendations contained within this report are in assumption that recommendations are being carried out and shall remain valid for the duration of twelve months from the date of inspection. On alterations to the property, soil levels or tree work, it is strongly recommended that a new tree inspection be carried out.
- Information contained in this report are based on the author's knowledge and experiences relating to tree issues. No removal of ivy or invasive decay detection equipment was used to assess any possible rot or cavities within the tree itself.
- Where trees were extensively ivy clad this was recorded in the survey schedule. In order to ascertain the possible presence of cavities or other defects underneath the ivy it is advised that ivy be removed and a re-inspection carried out.
- The surveyor is not liable for any failure in relation to any act of 'Force of Nature' or unforeseeable circumstances such as extreme weather conditions, changing soil conditions/levels or through change of natural surroundings which can all affect tree health.

1. Executive Summary

1.1. The Project and Commissioned Work

1.1.1. AA Tree Surgeons was instructed via email by Jon Pilkington of Pilkington Architecture Limited (agent of client Mr M Hartshorne) to write a report in line with British Standards 5837:2012 Tree Survey. The site is identified as 47, The Common, Crich, Derbyshire, DE4 5BH.

1.1.2. The site is large property situated of The Common with a large amount of garden area around all aspects of the property which is located in a central position to the plot. There are two entrance/exits to the property both located off The Common. The clients have expressed their priority is within the significant established trees over the proposed development which has been considered within this report.

1.1.3. An arboricultural impact assessment of the trees located on the site has been conducted in order to enable the determination of a planning application through the Local Planning Authority (LPA), taking into consideration site constraints in relation to trees and the proposed development.

1.1.4. Reviewing the impact proposals have on the trees and providing guidance on how to achieve the development without causing detrimental impact on the trees to be retained.

1.1.5. Current topographical site surveys produced using AutoCAD format, from provided pdf copies of Tree Survey Plan, Tree Constraints Plan and Tree Protection Plan with proposed development has formed the basis for the Arboricultural Impact Assessment and Arboricultural Method Statement.

1.1.6. The content and scope of this report is listed below:

- BS 5837:2012 Tree Survey and Categorisation
- Arboricultural Impact Assessment
- Arboricultural Method Statement
- Associated Tree Plans

1.2. Findings

1.2.1. The survey identified fourteen individual trees and no grouped specimens each growing in a typical large garden environment. The quality and value of the surveyed trees is summarised below and viewed in more detail in Appendix 1.

1.2.2. No trees attaining a Category 'A' where identified showing trees of high quality and value.

1.2.3. Trees assigned to a Category 'A' are of high quality demonstrating a good example of their species, visual importance or possess significant conservation values and an estimated remaining life expectancy of at least 40 years.

1.2.4. Ten trees attaining a Category 'B' where identified (T4, T5, T7-T14) showing trees of moderate quality and value.

1.2.5. Trees assigned to a Category 'B' are of moderate quality demonstrating Category 'A' trees which have been downgraded due to an impaired condition, having a high collective value as a group or material conservation values and an estimated remaining life expectancy of at least 20 years.

1.2.6. Three trees attaining a Category 'C 'where identified (T2, T3 & T6) showing trees of low quality.

1.2.7. Trees assigned to Category 'C' are low quality unremarkable trees of very limited merit, an impaired condition removing them from higher categorisation, low landscape benefits, no material conservation values, young trees having a stem diameter less than 150mm and an estimated remaining life expectancy of at least 10 years.

1.2.8. One tree attained a Category 'U' showing trees unsuitable for retention.

1.2.9. Trees assigned to Category 'U' are unsuitable for retention due to having serious structural defects or pathogens which could result in failure, become unviable after neighbouring Category 'U' trees are removed, dead or seriously declining trees and low-quality trees which are suppressing nearby better-quality trees. They cannot be realistically retained as living specimens in the current land use for longer than 10 years.

1.3 Recommendations

1.3.1 In the interests of promoting sensible arboricultural management, the findings and any associated recommendations as detailed within this report are considered to be reasonable and practicable.

1.3.2 Trees numbered T4-T14 are growing against/either side the access driveway from The Common to the proposed new access driveway and development. The preexisting driveway is completely made up of tarmac surfacing. The RPA's from these trees extend into this access road but this tarmac driveway has been pre-existing for a number of years. This information is assumed with the RPA's of retained trees drawn as a circular circumference. For the most part and upon consideration of their immediate growing environments, the projected RPAs of the surveyed trees, are not considered to be an accurate appraisal of anticipated root morphology and distribution. Rooting of these three trees could well have formed asymmetrically with these specimens as there is grassed and wooded areas alongside the access road which is more suitable for root growth. Which makes it likely that its potential root growth and morphology could reasonably be expected to have been limited, or influenced by the existing driveway, underneath this group of trees, which is likely to have had a limiting effect on potential root growth and development in that direction. There are some limited obvious signs of localised damage and/or disruption to the tarmac surface, which can often be an indication of direct damage, caused by tree roots, located just below the surface. The contravention area has been historically an access driveway therefore there's a good chance that there has been disturbance to the upper portion of ground forcing roots of these trees lower down. With these factors considered it is likely to assume that this contravention into the access road/car parking area will cause minimal disturbance to these trees. Root Protection Area barriers have been set up around a portion of the trees with an incorporation of stem boarding around T10 Pine (growing very close to the drive), viewable in Appendix 2 Tree Survey Plan with the proposed contravention area marked in hatched red, to protect them from the construction process such as movement of machinery/persons and other construction related activities. See section 6.5 if contact with roots occurs. There is to be no excavations or ground disturbance of any sort within the contravention

area marked in hatched red seen in Appendix 2. This pre-existing tarmac area will be able to withstand pedestrian-operated plant exceeding a gross weight of 2t, see notes in section 6.2.6, if any surface changes for operated plant are required.

1.3.3 The proposed new driveway routes over the top of the RPA's of T13 & T14 therefore a three-dimensional cellular confinement system will need to be placed within this segment of the driveway, marked in purple hatched markings, see section 6.6. This can be seen in Appendix 2 as the crossover between the red marked RPA's and the brown marked proposed new driveway. This information is assumed with the RPA's of retained trees drawn as a circular circumference. The contravention area has been historically a residential lawned area possibly maintained by mowing, cultivating plants and having feed & weed applied to the surface through the history of the property. Although this is a good rooting environment it is a good chance that there has been disturbance to the upper portion of ground forcing roots of these trees lower down. With these factors considered it is likely to assume that the contravention to which the proposed new access driveway and respective three-dimensional confinement system will cause minimal disturbance to these trees. Root Protection Area fencing has been set up around the trees, viewable in Appendix 2 Tree Survey Plan with the proposed contravention, to protect them from the construction process such as movement of machinery/persons and other construction related activities. See section 6.5 if contact with roots occurs.

1.3.4 Trees for retention or removal as they are category graded 'U' or 'C' trees are T1 Sycamore, T2 Copper Beech and T3 Sycamore. These trees are located on the southern boundary within the current driveway and are historically a pollard in relatively poor conditions. They collaboratively do not impede in any way the physical construction on site and because of their conditions can be kept within the development without any need of protection from construction activities or removed entirely. These are viewable in Appendix 2 Tree Survey Plan.

1.3.5 T10 Pine is located abutting the current access driveway which is the proposed access/egress route for the construction activities. A good quality tree to be retained almost up against pre-existing tarmac laid driveway. Extra RPA measures in the form of stem boarding will be required to provide protection from passing

construction traffic. See section 7.4 and Appendix 10 for more detail. The driveway is sufficient to carry construction traffic, so no further RPA measures required.

1.3.6 With consideration into infrastructure requirements there is no evidence to suggest any further impact other than what's already in situ retained trees will have on lighting, signage, CCTV sightlines or visibility splays.

1.3.7 Trees indicated on table 7.1 require pruning operations be undertaken pre-commencement of the proposed construction, further described in section 6.13.

1.3.8 Details of any proposed landscaping have been provided in a visual plan and can be seen in the Appendix 5 Scale drawing of proposed development. If any parts of the paved areas and landscaping around the proposed development incurs into the RPA's. It is advised to take into account not only the considerations in section 6.14, but the recommended planting distances detailed in table 6.5.

TREE SURGEONS

2. Introductory details

2.1. Authority to carry out the report

2.1.1. Andrew Harrison (Author) is a fully qualified arborist with over 23 years' practical experience in the Arboricultural Industry. Thomas Fowler is also a fully qualified arborist with over 16 years' practical experience in the Arboricultural Industry.

2.1.2. Andrew was educated for three years at Broomfield College, subsequently gaining supervisory positions for tree contractors, now Managing Director of AA Tree Surgeons Ltd. Andrew is committed to continued professional development and training holding a LANTRA Professional Tree Inspection Certificate, a three-year foundation degree in Arboriculture through Myerscough College and a professional grade member to the Arboricultural Association MArborA (www.trees.org.uk).

2.1.3. Thomas was also educated for four years at Broomfield College, subsequently gaining lead climber positions for tree contractors, now in supervisory and consultancy positions working with AA Tree Surgeons Ltd. Thomas is committed to continued professional development and training holding a LANTRA Professional Tree Inspection Certificate and a professional grade member to the Arboricultural Association (www.trees.org.uk).

2.1.4. A list of qualifications and experience can be viewed in Appendix 3.

2.2. Regulatory and Policy Framework

2.2.1. Tree Preservation Orders (TPOs) and Conservation Areas where applied place various statutory restrictions on the felling, pruning or damaging of trees and are subject to various exemptions (Department for Communities and Local Government, 2000).

2.2.2. A Felling Licence would need to be obtained via the Forestry Commission if more than 5m^3 of timber in any calendar quarter is to be removed through tree felling on non-residential land which is subject to various exemptions and variations (Forestry Commission, 2007).

2.2.3. An overriding exemption to the above constraints involving tree pruning and felling is accepted when it is deemed necessary to implement development that has already received full planning permission.

2.2.4. Biodiversity Net Gain (BNG)

BNG is an approach to development. It makes sure that habitats for wildlife are left in a measurably better state than they were before the development. In England, BNG is mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). Developers must deliver a BNG of 10%. This means a development will result in more or better-quality natural habitat than there was before development.

From 12th February 2024, BNG will be mandatory for new planning applications for major development made under the Town and Country Planning Act (TCPA) 1990, subject to the confirmed exemptions. Major development includes residential developments with 10 or more dwellings, or where the site area is greater than 0.5 hectares. BNG will apply to new applications for planning permission, except for applications for retrospective permission, the exemptions and transitional arrangements.

BNG for small sites will have an extended transition period and will apply from 2nd April 2024. Small site development includes:

- Residential development where the number of dwellings is between 1 and 9, or if unknown the site area is less than 0.5 hectares.
- Commercial development where floor space created is less than 1,000 square metres or the total site area is less than 1 hectare.

Example

A developer cuts down some trees on the site. They must make up for this impact on the habitat, as well as delivering 10% BNG.

They must do a survey of habitat before development and use the statutory biodiversity metric to explore options. This tells them how to make up for the loss of the trees and what more they need to do to achieve 10% BNG.

If they cannot achieve the 10% BNG by creating and enhancing on-site habitats, they must buy off-site units.

If that is not enough to achieve BNG, they must buy statutory biodiversity credits.

Further guidance can be found at the following web-link:

https://www.gov.uk/guidance/understanding-biodiversity-net-gain

2.2.5. You should discuss your plans with an ecologist, who will measure the biodiversity value of your existing habitat and explore ways to achieve BNG using the metric tool, they will:

- Measure the biodiversity value of your existing habitat.
- advise on suitable habitat creation or enhancement for the land.

3. Inspection Methodology

3.1. Inspection methods

3.1.1. Trees were assessed using a Visual Tree Assessment (VTA); a systematic process to assess a tree for any potential hazards and defects by looking at the biological and mechanical aspects devised by Claus Mattheck (Mattheck 2007). No aerial climbing inspection was undertaken, Binoculars, DSLR camera, Laser Ace clinometer and girth tape were used to assess the tree.

3.1.2. The site was visited and assessed by Andrew Harrison to carry out an assessment in accordance with BS 5837:2012 – Trees in relation to Design, Demolition and Construction Recommendations. The following information was collected for each tree:

- Sequential reference number;
- Species, inc Scientific name;
- Height (Meters);
- No. of stems;
- Stem diameter (Millimetres at 1.5m DBH (BS5837 Annex C));
- Branch spread (North, East, South, West in Meters);
- Existing height above ground level of
    - First significant branch and direction of growth (e.g. 2 SE)
    - Canopy;
- Life stage (Appendix 4);

  Y - Young,

  SM - Semi Mature,

  EM - Early Mature,

  M – Mature

  OM – Over Mature,

  V - Veteran;
- General observations, particularly of structural and/or physiological condition;
- Estimated remaining contribution;
- Category 'U' or 'A' to 'C' grading with the subcategory 1, 2 or 3 reflecting arboricultural, landscape or cultural values, respectively (BS5837 Section 4.5).

3.1.3. Root Protection Area (RPA) radius in Meters (M) and Area M^2.

4. Site observations

4.1. Site Plan

4.1.1. The application site is 47, The Common, Crich, Derbyshire, DE4 5BH (approximate OS Grid Reference SK 35148 53694), vehicular access to the site is directly from The Common.

4.1.2. The location of the site is shown in Figure 4.1 below with the approximate extent of the boundary indicated by a red line. A scaled Tree Survey Plan can be viewed in Appendix 2.



Figure 4.1 Map view of the Site © Crown Copyright and Database rights 2026 Ordnance Survey

4.2. Site Constraints

4.2.1. No attempt had been made to check the site for archaeological remains protected by the Ancient Monuments and Archaeological Areas Act 1979 and therefore not liable.

4.2.2. The Occupiers Liability Act 1984 (S2) states that the occupier owes a 'common law duty of care' to visitors and those who enter his land or premises, which extends to trespassers.

4.2.3. The surveyor has not sent soil or root samples for analysis, and all inspections were conducted from ground level using the Visual Tree Assessment (VTA) method (Mattheck 2007), no climbed inspection, removal of ivy or excavation of rooting areas, including movement of paved or tarmacked areas were involved.

4.2.4. Soils and rooting characteristics of trees are enormously variable as are their interactions, therefore, quantifying subsidence risk is impossible and has not been assessed nor should any be construed.

4.2.5. You are advised where man-made structures are involved you may need to obtain structural engineering and/or geotechnical advice.

4.2.6. The Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way Act 2000 and The Conservation of Habitats and Species Regulations 2010 protect ALL wild birds, their nests (whether in use or being built), eggs, also other wild animals including bats and their roosts in or adjacent to trees.

4.2.7. Any notifiable weeds found to be present on site are to be given careful consideration into the handling and environmental effects they may pose. Detail of which can be found on Environmental Management Guidance www.gov.uk. There possible presence has not been assessed within this report.

4.3. Site Conditions

4.3.1. The weather at the time was dry, bright with a light breeze adequate for conducting the survey.

5. Results

5.1. Statutory Tree Protection

5.1.1. A website check on Amber Valley Borough Councils home page was done on 21st July 2026 to check for any current statutory protection which may apply to any trees on this site in relation to a Tree Preservation Order (TPO) or a Conservation Area. It was seen that the site has no restrictions in the form of a Conservation Area or Tree Preservation Orders (TPO's) exist on site at this current time.

5.1.2. If trees located on this site fall within statutory protection, it should be understood that no pruning works are to be carried out. Permission needs to be granted by the LPA to consider the works by following either:

- a formal application for tree works (Trees protected by a TPO),
- a 6-week notification period of intended tree works is submitted (Trees within a Conservation Area)
- or the submission of a 5-day notice under section 198(S6a) of the Town and Country Planning Act 1990 where works are considered exempt due to conditions of dying, dead or have become dangerous. In which proof needs to be provided of such to the LPA. Seeking guidance though a qualified arborist or the LPA is always advised on this instance.

5.1.3. Failure in obtaining consent or proceeding with tree works can result, if convicted, to a fine of up to £20,000 in a Magistrates Court. On indictment, a person may be committed to the Crown Court and, if convicted, liable to an unlimited fine.

5.1.4. Where full planning permission has been granted there is an overriding exemption for the above restrictions on tree felling and pruning works where it has been deemed necessary to implement development.

5.2. Tree Survey

5.2.1. The survey identified fourteen individual trees and no grouped specimens, the quality and value of which are summarised in Appendix 1 in accordance with BS5837:2012. See also Appendix 4 Life stage and Condition Key.

6. Arboricultural Impact Assessment

6.1. Trees suitable for retention

6.1.1. Where possible Category 'A' and Category 'B' trees are generally considered desirable therefore should be retained and incorporated into new development plans. Category 'U' trees are not considered appropriate for retention. Category 'C' trees can be retained or removed taking into consideration of the proposed development design implementations.

6.1.2. Assessing tree suitability for retention in the context of the proposed layout the following factors have all been considered.

- Root Protection Areas
- Special Engineering for Foundations within the RPA
- Infrastructure
- Excavation/Ground Works
- Hard Surfacing within the Root Protection Area
- Construction Activity
- Shading
- Privacy and Screening
- Direct Damage
- Future Tree Management
- Tree Removal
- Tree Pruning
- Landscaping
- Tree Loss Evaluation
- Seasonal Nuisance

6.2 Root Protection Areas

6.2.1 Erection of protective fencing and tree stem protective boarding as described on Appendix 1 Tree Protection Plan (TPP), section 7.3, prior to the commencement of any site works will protect the RPA of retained trees.

6.2.2 Existing ground levels, with the inclusion of topsoil, must be retained within the RPAs. Intrusion into soil within the RPAs is generally not acceptable.

6.2.3 Erection of protective fencing, for this site, is considered likely to place constraints on elements of the construction, its associated activities and possibly limit the working space available. The RPA of pine tree's T13 & T14 have incursions within the RPA consequently, ground protection measures are required to be adopted where necessary, to minimise the potential for any detrimental effect that the relevant construction activity might have. These incursions are to be protected using a three-dimensional cellular confinement system over the proposed new extension of the driveway and parking areas, Viewable in Appendix 1 hatched in purple.

6.2.4 General guidance is provided below, which if adopted will help to minimise any potential ground works and construction detrimental effects.

6.2.5 Existing hard surfacing which is deemed suitable for the construction and development process should be retained to act as ground protection. This is applicable to the current access driveway already in situ marked in grey on Appendix 1. If reinstatement of this surfacing is needed, it is to be assessed after construction completion. Suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate (BS 5837:2012).

6.2.6 British Standards 5837:2012 advises new temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction to underlying soil and further provides the following note:

NOTE The ground protection might comprise one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on

top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

6.3 Special Engineering for Foundations within the RPA

6.3.1 Development can be implemented within the RPA, on the basis that the area of consideration given to the tree roots is extended to include the places where the tree is clearly going to most benefit. No strip footings are required within the RPA's of any of the trees indicated on site, therefore not applicable to this proposed development.

6.4 Infrastructure

6.4.1 With consideration into infrastructure requirements there is no evidence to suggest and further impact other than what's already in situ retained trees will have on lighting, signage, CCTV sightlines or visibility splays.

6.4.2 On the proposed necessary installation of any underground apparatus or drainage particular care should be taken in its routeing and methods of installation. Wherever possible it is to be routed outside RPAs.

6.4.3 If it is not possible to route services outside RPAs then detailed plans should be formulated, in conjunction with the project Arboriculturist and taking into consideration NJUG Volume 4 (2010), to outline the proposed routes. Trenchless insertion methods are considered to be most appropriate for this requirement as described within British Standards 5837:2012 detailing different solutions for differing utility apparatus requirements (see table 6.1 below).

6.4.4 British Standards 5837:2012, Section 7.7.2 suggests that in digging shallow service runs then excavation using hand-held tools, appropriately retaining and protecting

exposed roots by wrapping or covering may be acceptable. Removing the wrapping and backfilling should be done as soon as possible after installation.

Table 6.1 Trenchless solutions for differing utility apparatus installation requirements

Method	Accuracy	Bore dia. [A]	Max. sub. [B] length	Applications	Not suitable for
	mm	mm	m		
Microtunnelling	<20	100 to 300	40	Gravity-fall pipes, deep apparatus, watercourse/ roadway undercrossings	Low-cost projects due to relative expense
Surface-launched directional drilling	≈100	25 to 1 200	150	Pressure pipes, cables including fibre optic	Gravity-fall pipes, e.g. drains and sewers [C]
Pipe ramming	≈150	150 to 2 000	70	Any large-bore pipes and ducts	Rocky and other heavily obstructed soils
Impact moling [D]	≈50 [E]	30 to 180 [F]	40	Gas, water and cable connections, e.g. from street to property	Any application that requires accuracy over distances in excess of 5 m

[A] Dependent on strata encountered.

[B] Maximum subterranean length.

[C] Pit-launched directional drilling can be used for gravity fall pipes up to 20 m subterranean length.

[D] Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.

[E] Substantial inverse relationship between accuracy and distance.

[F] Figures given relate to single pass: up to 300 mm bore achievable with multiple passes.

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6.5 Excavation/Ground Works

6.5.1 Before work commencement erection of protective fencing and/or use of ground protection plus the erection of plywood board around tree stems close to construction traffic will allow excavations and ground works to take place without any adverse effect and/or impact on the retained trees.

6.5.2 All plant and vehicles engaged in ground works should either operate outside the RPAs or run on ground protection (see 6.2.6) in the proximity of retained trees.

6.5.3 Where excavation and groundworks are to be undertaken within or close to an RPA special consideration is to be given to the tree roots as described in Volume 4 NJUG guidelines section 4.1. Operatives handout viewable in Appendix 7.

6.5.4 Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

6.5.5 Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible.

6.5.6 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 of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability.

6.5.7 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.

6.6 Hard Surfacing within the RPA

6.6.1 Current plans do anticipate that the installation of a 'no-dig' type surface will be necessary for the new proposed driveway extension and parking area, see purple hatched area within Appendix 2, also section 1.3. General guidance for its installation is given below.

6.6.2 Arboricultural Practice Note No. 12 (2007) describes in detail requirements needed of a no-dig type installation whilst BS 5837:2012 section 7.4.2 note 1 suggests 'Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems'.

6.6.3 The existing site topography needs prior assessment to ascertain if it lends itself to the installation of a three-dimensional cellular no-dig product with the anticipation of the required and final level changes taken into account.

6.6.4 Cross sectional example drawings of a suitable product can be seen below (figures 6.2, 6.3 & 6.4) and in Appendix 8 as an installation method.

TREE SURGEONS

Figure 6.2 Composition of the GeoWeb^{tm} system.

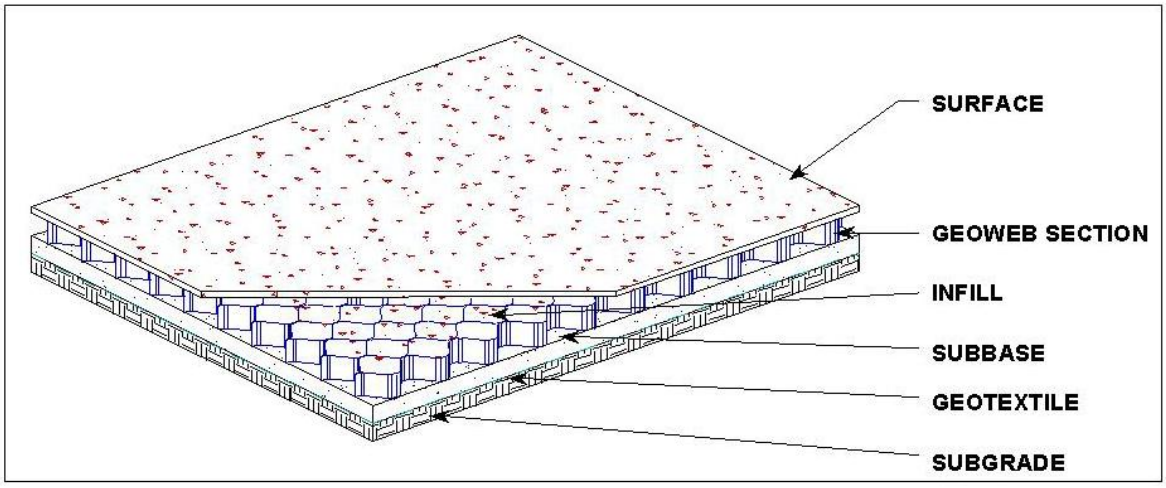


Figure 6.3, Cross section illustrating a block paved surface finish.

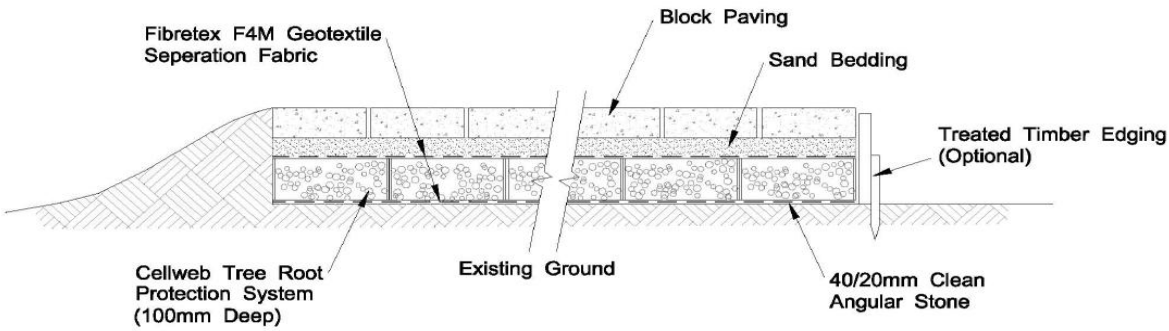
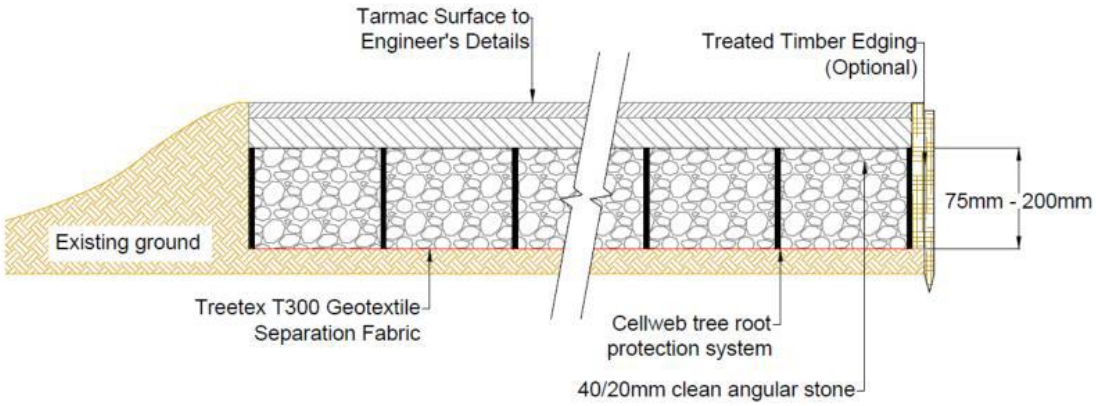


Figure 6.4, Cross section illustrating a tarmac surface finish.



6.7 Construction Activity

6.7.1 Erection of protective fencing and/or use of ground protection plus the erection of plywood board around tree stems close to construction traffic, prior to work commencement on site will allow the development to proceed without any adverse effect and/or impact on the retained trees.

6.7.2 All plant and vehicles engaged within construction works should operate outside the RPA, or if needed within the RPA do so on ground protection (see section 6.2.6) and Appendix 8 Typical 3 Dimensional 'No-dig' Installation Methodology.

6.7.3 Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches of trunk. This will depend on the size of the fire and the wind direction.

6.8 Shading

6.8.1 An indication of potential direct sunlight obstruction can be illustrated using drawn segments with a radius from the centre of the stem equal to the current tree height. These are drawn from due north-west to due east.

6.8.2 The segments will represent a basic illustration indicating the shadow pattern through the main part of the day. Based on advisory comments detailed in section 5.22, Note 1 of BS 5837:2012.

6.8.3 On consideration of the above points, the residents stating to retain the significant trees and no other nearby residences being affected due to the favourable design layout, no further investigation, illustration or mitigation is considered necessary.

6.9 Privacy and screening

6.9.1 The proposed development has been considered to prevent any overlooking of neighbouring properties and protect internal privacy. The orientation and aspect of the proposed building use the location of surrounding mature trees, assessed to be retained, as a cover to provide privacy and screening.

6.10 Direct Damage

6.10.1 Proposed layouts should take into consideration any likelihood of direct damage occurring from incremental root and stem growth and the possibility of the fabric of any new structure being damaged by the whipping of branches against it. Taking into account pruned branches and the trees ultimate growth to minimise frequent remedial pruning.

6.10.2 In respect to the submitted layout likelihood of direct damage occurring in the manner described above from retained trees is highly unlikely as the proposed development is a sufficient distance away from any of the trees potential fully mature lateral spreads.

6.10.3 Table 6.5 below, taken from Annex A of BS 5837:2012 provides advised minimal distances of trees from new structures for new plantings should any new planting be requested.

Table 6.5, Minimum distance between young trees or new planting and structure to avoid direct damage to a structure from future tree growth.

Type of structure	Minimum distance between young trees or new planting and structure, in metres (m)		
	Stem dia. <300 mm [A)]	Stem dia. 300 mm to 600 mm [A)]	Stem dia. >600 mm [A)]
Buildings and heavily loaded structures	—	0.5	1.2
Lightly loaded structures such as garages, porches etc.	—	0.7	1.5
Services			
<1 m deep	0.5	1.5	3.0
>1 m deep	—	1.0	2.0
Masonry boundary walls	—	1.0	2.0
In-situ concrete paths and drives	0.5	1.0	2.5
Paths and drives with flexible surfaces or paving slabs	0.7	1.5	3.0

[A)] Diameter of stem at 1.5 m above ground level at maturity

©The British Standards Institution 2012

6.11 Future Tree Management

6.11.1 The presence of retained high category trees enhances the immediate environment and upon build completion, sufficient space should be provided within the layout plans. This will allow for future tree growth and eliminate the need for frequent remedial tree pruning operations.

6.11.2 If the site is eligible for the BNG delivery for off-site gains and significant on-site gains, you must maintain the habitats you create or enhance for a minimum of 30 years. The responsibilities will be set out in a legal agreement with the local authority. The legal agreement will set out how you will create, enhance, maintain and monitor the biodiversity of your registered units to deliver off-site biodiversity net gain. It must last for a minimum of 30 years.

6.12 Tree Removal

6.12.1 No trees have been indicated for removal unless it is decided T1-3 aren't suitable for retaining by the client.

6.13 Tree Pruning

6.13.1 Trees indicated on Table 7.1 require pruning operations be undertaken.

6.13.2 T13 & T14 Pine is considered a category 'B' therefore of moderate value, the tree has branched drooping into the access/egress route of the proposed construction driveway. Facilitation pruning consisting of a 5-6m lift of the branches over the access/egress road only will allow access/egress for construction traffic thus reducing future maintenance pressures.

TREE SURGEONS

6.14 Landscaping

6.14.1 British Standards 5837:2012 advises that any new tree planting proposals are an essential consideration in development and long-term landscape structure of the site. Landscaping proposals should consider the ultimate height and spread, form, habit and colour, density of foliage and maintenance implications, in relation to both the built form of the new development, and the retained landscape features.

6.14.2 Where possible, new planting should be linked to nearby existing tree groups, nearby planned removal of trees or if not feasible, around the edge of the site to form valuable wildlife corridors and visual links.

6.14.3 Details of any proposed landscaping have been provided seen in Appendix 5. Any future planting should take into account not only the considerations above, but the recommended planting distances detailed in table 6.5.

6.14.4 Paving slabs and block pavers Paving slabs and block pavers are available with built-in infiltration spaces between the slabs or blocks. These are ideal but need to be laid dry-jointed on a sharp sand or coarse aggregate no-fines foundation to allow air and moisture to penetrate to the rooting area.

TREE SURGEONS

6.15 Tree loss evaluation

6.15.1 The proposed layout requires the removal of no trees.

6.16 Seasonal Nuisance

6.16.1 Seasonal nuisances can be described by some as the fall of foliage, fruit and cones into property grounds or lodged within structures. This is often referred as a seasonal nature problem by LPA's and pruning works requested as a consequence of this seasonal occurrence is often refused.

6.16.2 Consideration into this seasonal occurrence when proposing new development plans will help in minimising issues experienced by people living in close proximity to trees.

6.16.3 Within the current plans, any Autumnal leaf fall has been considered in view of the proposed structures and proximity to the trees. These trees are evergreen but do shed needles all year round. The proposed structure should fall outside the needle drop zone, although the residents show appreciation to the trees gutter maintenance will most likely be an annual maintenance task.

TREE SURGEONS

7. Arboricultural Method Statement

7.1. Issues to be addressed within an Arboricultural Method Statement

7.1.1. This statement details the general methodology for the implementation of any aspects which have the potential for any loss or damage to the retained trees.

7.2. Facilitation Tree Works

7.2.1. Tree works, as indicated in the table below (Table 7.1) have been identified as a direct result of implementing the proposal.

7.2.2. Any additional tree works collated considers facilitating the proposal implementation with integration of a more balanced desirable layout collocation and have been considered necessary or appropriate in the interests of good arboricultural management.

7.2.3. Facilitation tree works identified for T13 and T14 Pine should be carried out prior to the erection of any protective fencing and/or installation of any no-dig product to minimise the risk of unnecessary damage to the tree.

7.2.4. Any tree works should be carried out using the principles and practices described in British Standards 3998:2010 – Tree Work – Recommendations

Table 7.1: Summary of Necessary & Recommended Tree Works

Tree Ref. No.	Species	Category	Recommended Tree Works
T13	Austrian Pine (*Pinus nigra*)	B2	Facilitation pruning by crown lifting over driveway to 5m.
T14	Austrian Pine (*Pinus nigra*)	B2	Facilitation pruning by crown lifting over driveway to 6m.

7.3. Tree Protection Plan

7.3.1. The TPP as seen in Appendix 1, read in conjunction with this report and the proposed layout, informs and describes the required tree protection measures for the proposed retained trees.

7.3.2. This TPP will outline the linear radial distances for the erection of the protective fencing and extent of ground protection measures needed for the retained trees.

7.4. Erection of Protective Fencing and boarding

7.4.1. Protective fencing should be erected as per the provided TPP measured using the linear distances as specified within the Tree Survey Schedule and constructed prior to any commencement of work on site.

7.4.2. The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts and fit for purpose in excluding construction activity. Barriers should be maintained to ensure that they remain rigid and complete. Illustrated in Figure 7.2 below.

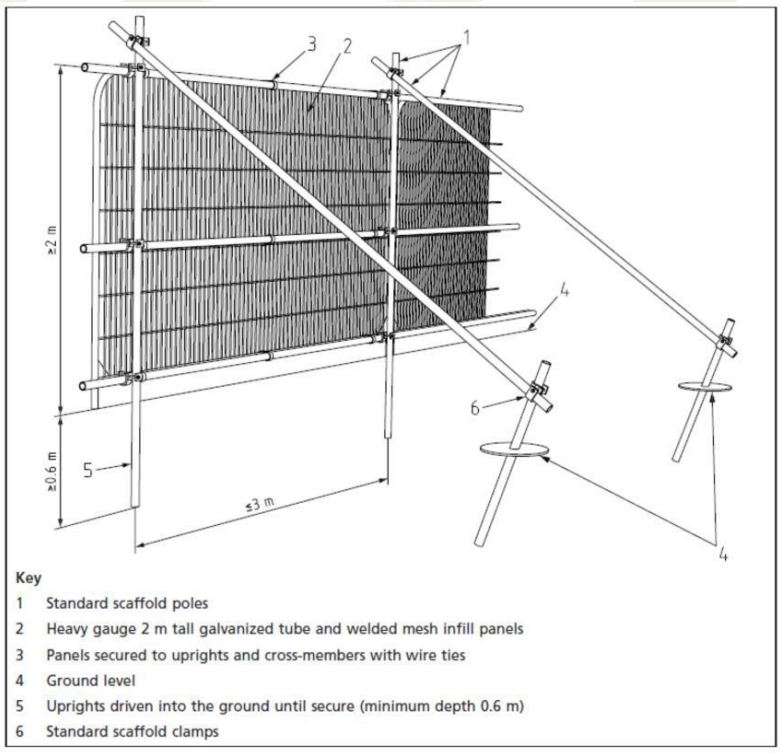


Figure 7.2 Default specification for protective barrier © British Standards Institute 2012

7.4.3. All-weather notices should be attached to the fencing; a suitable example for use has been attached in Appendix 6.

7.4.4. On erection of the fencing the area within it should be regarded as sacrosanct and not removed or altered without prior consultation from the project Arboriculturist (7.5.1) and, where necessary, Local Planning Authority approval.

7.4.5. It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without encroachment or damage of the retained trees or their RPA's.

7.4.6. Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, such as the presence of underground services or contact avoidance with structural roots, an alternative specification should be prepared by the project Arboriculturist. For example, 2m tall, welded mesh panels on rubber or concrete feet as illustrated in Figure 7.3 (see below).

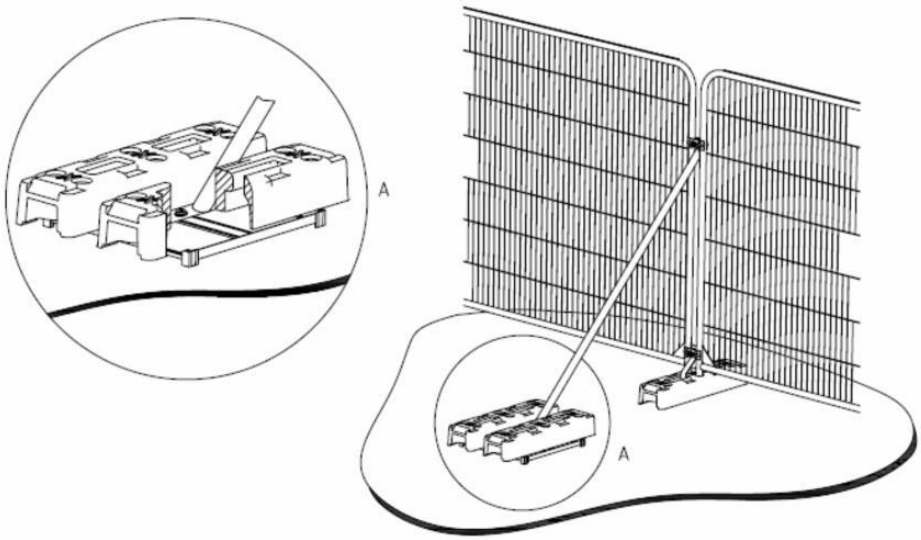


Figure 7.3 Stabilizer strut mounted on block tray © British Standards Institute 2012

7.4.7. Where specified in the TTP (Appendix 1), the tree stem of T10 shall be boxed off with a minimum of 2.5-meter-high wooden ply boards mounted on a wooden frame fixed to each other. For support, wooden braces can abut the tree stem but in no way to be fixed to it. This will help avoid any direct damage to tree stems from passing machinery, see Appendix 10 for design examples.

7.5. Site Monitoring

7.5.1. It is recommended that a Project Arboriculturist is appointed prior to the commencement of any works and retained for the duration of the project.

7.5.2. The appointed Arboriculturist can assist in monitoring Arboricultural site activity in association with an accountable/auditable system.

7.5.3. In the event of any additional ground protection requirements, incursions into the RPA or root pruning operations the appointed Arboriculturist should be consulted prior to commencement of operations.

7.6. Ground Works & Demolition

7.6.1. The erection of protective fencing, as per the TPP prior to the commencement of any works on site allows ground works to be undertaken in consideration of the sacrosanct of the RPA preventing any adverse effects and/or impacts on the retained trees.

7.6.2. When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed (see 6.2.6), to protect the underlying soil to the edge of the existing structure. Also review section 6.5 within this report.

7.6.3. All plant and vehicles engaged in demolition works should either operate outside the RPA or run on the ground protection (see 6.2.6). Where such ground protection is required, it should be installed prior to commencement of operations.

7.6.4. Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as “top down, pull back”). Or in the case of this development construction equipment manoeuvred outside the RPA pulling back the spoil away from the RPA. NOTE Where there is a significant build-up of dust on the foliage, it might be necessary to hose down the tree(s).

7.6.5. The advice of an arboriculturist should be sought where underground structures present within the RPA are, or will become, redundant. In general, it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.

7.6.6. Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

7.7. Soil Compaction and Remediation Measures

7.7.1. Soil compaction caused by development operations lacks suitable conditions needed for the survival and growth of existing or new vegetation. This is a common cause of tree mortality after development completion.

7.7.2. Compacted soils critically affect surface water absorption and gaseous exchange between the roots and the external environment consequently affecting nutrient uptake impeding or restricting root formation.

7.7.3. In all circumstances soil compaction should be avoided around existing or proposed vegetation and tree planting locations.

7.7.4. If soil compaction has occurred in the vicinity of existing trees remedial works can be undertaken to rectify the problem. This could include sub-soil aeration by use of an air spade, integration of organic matter and nutrients to reinvigorate the host soils.

7.7.5. No Heavy mechanical cultivation such as ploughing or rotavation should occur within the RPA.

7.7.6. Any cultivation operations inclusive of the RPA are to be undertaken carefully by hand in order to minimize damage to the tree and its rooting system following guidelines in NJUG Volume 4 (2010) see Appendix 7.

7.8. Construction Works

7.8.1. The erection of protective fencing, as per the TPP prior to the commencement of any works on site allows construction works to be undertaken in consideration of the sacrosanct of the RPA preventing any adverse effects and/or impacts on the retained trees.

7.8.2. All plant and vehicles engaged in ground works should either operate outside the RPA or run on ground protection (see 6.2.6) and Appendix 8.

7.8.3. Where construction works such as the erection of new boundary fencing is proposed within the RPA of retained trees then its installation should be carried out adopting the principles of the NJUG Volume 4 (2010). Operatives handout viewable in Appendix 7.

TREE SURGEONS

7.9. Contractors Storage, Parking & Access

7.9.1. Provisions for any contractor's welfare facilities, site offices, parking, storage of materials, plant, construction spoil or mixing of working materials should be done outside the RPA.

7.9.2. Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank, largest tanks or combined tanks if multiple, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund pointing downwards with no drainage into any watercourse land or underground strata. Associated pipework shall be located above ground and protected from accidental damage.

7.10. No-Dig Surfacing

7.10.1. No-dig surfacing is required within the RPA's of T13 & T14 (seen in purple shaded area of Appendix 2) and should be set out to product specific manufacturer's installation guidelines following specifications set out in section 6.5 of this report and Appendix 7 – Typical 3 Dimensional 'No-dig' Installation Methodology.

7.10.2. Should existing hard surfacing need to be replaced it should be retained as temporary ground protection within the RPA for the duration of the construction period. When removed done so carefully using hand tools with immediate replacement of no-dig surfacing as described in section 6.6 and Appendix 8.

7.10.3. Exposure of the RPA on removal of existing hard surfacing should be treated as sacrosanct, and no intervention should take place within it.

7.10.4. Product specific manufacturer's installation guidelines should be adhered to.

7.11. Completion

7.11.1. Upon project completion, advice should be sought from the project Arboriculturist in coordination with the removal of any protective fencing, boarding and ground protection. If necessary, a re-survey of the retained trees to investigate on any symptoms of damage and/or stress in association with the development operations.

7.11.2. Protective fencing, boarding and ground protection measures are to remain in place until all risks involved by the development process have subsided.

7.12. Contacts

Andrew Harrison, AA Tree Surgeons Ltd, 3 Derby Road, Ripley, Derbyshire, DE5 3EA. Tel: 07957 624803. Email: info@aatreesurgeons.co.uk

Jon Pilkington, Pilkington Architecture Limited, 29A Strettea Lane, Higham, Alfreton, Derbyshire DE55 6EJ. Tel: 01773 843333 Mob: 07768 523901, Email: jon@pilkington-architecture.co.uk

Appendix 1 – **Tree Survey Schedule**

Appendix 2 – **Tree Survey and Protection Plan**

Appendix 3 – **Andrew Harrison Curriculum Vitae**

Professional Qualifications

Broomfield College – BTEC First Diploma in Horticulture (2001)

Broomfield College – National Certificate in Horticulture (2002)

Broomfield College – National Certificate in Arboriculture (2003)

City & Guilds NPTC CS30 – Maintain the Chainsaw (2002)

City & Guilds NPTC CS36 – Cross-cut and Stack Produce (2002)

City & Guilds NPTC CS38 – Climb Trees and Perform Aerial Tree Rescue (2002)

City & Guilds NPTC CS31 – Fell Small Trees (2003)

City & Guilds NPTC CS39 – Operate Chainsaw from a Rope and Harness (2003)

City & Guilds NPTC CS40 – Carry out Pruning Operations (2007)

City & Guilds NPTC CS41 – Carry out Dismantling Operations (2007)

Lantra – Professional Tree Inspection (2013)

Arboricultural Association – Tree Pests, Diseases and Fungi (2014)

Lantra – Arboriculture and Bats (2015)

City & Guilds NPTC – Safe use of Manually Fed Wood-chipper (2015)

National Trust – Tree Veteranisation (2016)

National Trust – Veteran Tree Management (2016)

Lowe Maintenance – Ash Dieback Course (2020)

Myerscough College – Foundation Degree in Arboriculture (2015-2017)

Arboricultural Association – Professional Membership MArborA (www.trees.org.uk)

Career

2003-2005 – Groundsman to Foreman at Forest Farm Tree Services

2005-2012 – Foreman at Ian Trueman Specialist Tree Services

2012-2018 – Part time Assistant Tree Officer at Amber Valley Borough Council

2012 – Director of AA Tree Surgeons ltd. (www.aatreesurgeons.co.uk)

Appendix 3 cont. – **Thomas Fowler Curriculum Vitae**

Professional Qualifications

Broomfield College – Environmental Conservation Lvl 2 (2004-2005)

Broomfield College – Countryside Management Lvl 3 (2005-2007)

Broomfield College – Lvl 3 BTEC National Award in Forestry and Arboriculture (2007-2008)

City & Guilds NPTC CS30 – Maintain the Chainsaw (2008)

City & Guilds NPTC CS36 – Cross-cut and Stack Produce (2008)

City & Guilds NPTC CS38 – Climb Trees and Perform Aerial Tree Rescue (2009)

City & Guilds NPTC CS31 – Fell Small Trees (2008)

City & Guilds NPTC CS39 – Operate Chainsaw from a Rope and Harness (2009)

City & Guilds NPTC – Safe use of Manually Fed Wood-chipper (2009)

Lantra – Professional Tree Inspection (2023)

Arboricultural Association – Professional Membership (www.trees.org.uk)

Career

2008-2010 – Groundsman to Climber at Ian Trueman Specialist Tree Services

2010-2011 – Climber at Nottingham City Council

2011-2012 – Tree Officer at Nottingham City Council

2012-Current – Lead climber and consultant of AA Tree Surgeons ltd (www.aatreesurgeons.co.uk)

TREE SURGEONS

Appendix 4 - **Life Stage and Condition Key**

Condition	
Good	Trees are relatively free from defects, abiotic, biotic or structural and show normal vitality signs comparable to similar species within the same environment.
Fair	Trees exhibit some minor/manageable defects or evidential minor remedial pruning cuts present and showing normal vitality signs comparable to similar species within the same environment.
Poor	Trees exhibit a high level of defects with or without subsequent significant past pruning works. Showing relatively low vitality signs comparable to similar species within the same environment.
In Decline	Trees nearing the end of useful life expectancy and displaying low vigour and branch retrenchment.

Life Stage	
Newly Planted	Trees suspected to be planted in the past 5 years.
Young	Trees considered to be within the first third of their full life expectancy.
Semi to Early Mature	Tree has not yet reached full maturity and considered to be within their second third of full life expectancy.
Mature	Trees considered to be within their final third of full life expectancy.
Over Mature	Tree is described as having exceeded its full life expectancy but yet to replicate features typical of a veteran tree.
Veteran	Tree exhibits signs as those described in 'Veteran Trees A Guide To Good Management (Reed 2000).

A Typical useful life expectancy of common tree species (Helliwell 2008)

Years	**Tree Species**
300+	Yew
250-300	Common Oak, Sweet Chestnut, London Plane, Sycamore, Limes, Scots pine
150-250	Cedar of Lebanon, Hornbeam, Beech, Tulip tree, Norway maple, Corsican pine, Common ash
100-200	Norway Spruce, Walnut, Red Oak, Horse Chestnut, Field Maple, Monkey Puzzle, Mulberry, Pear
60-100	Rowan, Whitebeam, Apple, Wild Cherry, catalpa, Robinia, most Poplars, Willows, Cherries, Alders and Birches

Appendix 5 – **Scale drawing of Proposed Development**

Appendix 6 - **Protective Fencing Signage**

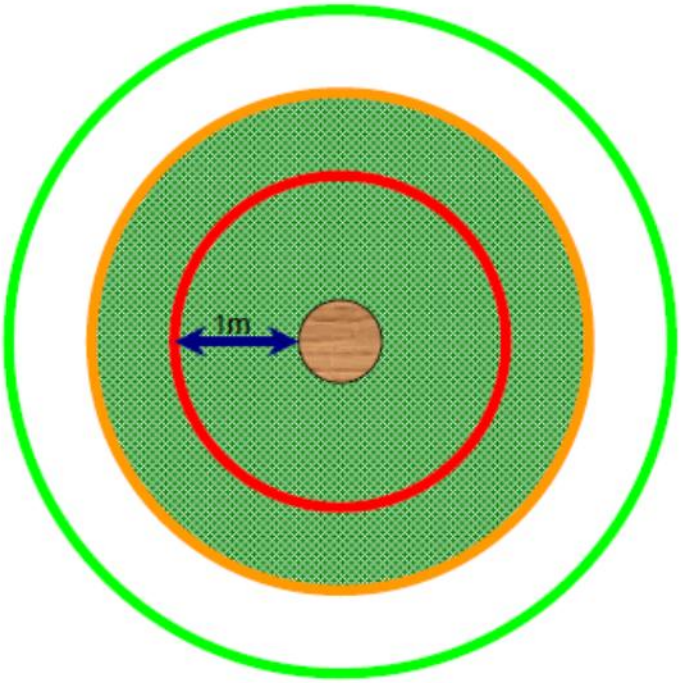




Appendix 7 – **NJUG Volume 4 Operatives Handout**

The National Joint Utilities Group

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 2



TREE PROTECTION ZONE

Key to Diagram

Trunk of Tree

Spread of canopy or branches

PROHIBITED ZONE – 1m from trunk. Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.

PRECAUTIONARY ZONE – 4 x tree circumference. Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.

PERMITTED ZONE – outside of precautionary zone. Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

DAMAGE TO TREES

Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil and often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. Most street tree roots grow under the footway but may also extend under the carriageway. If roots are damaged the tree may suffer irreversible harm and eventually die.

PROTECTING ROOTS - DO'S and DON'TS

There are three designated zones around a tree each of which has its own criteria for working practices.

THE PROHIBITED ZONE

Don't excavate within this zone.

Don't use any form of mechanical plant within this zone

Don't store materials, plant or equipment within this zone.

Don't move plant or vehicles within this zone.

Don't lean materials against, or chain plant to, the trunk.

Do contact the local authority tree officer or owner of the tree if excavation within this zone is unavoidable.

Do protect any exposed roots uncovered within this zone with dry sacking.

Do backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PRECAUTIONARY ZONE

Don't excavate with machinery. Where excavation is unavoidable within this zone excavate only by hand or use trenchless techniques.

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Don't repeatedly move / use heavy mechanical plant except on hard standing.

Don't store spoil or building material, including chemicals and fuels, within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non highway sites backfill only with excavated soil.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PERMITTED ZONE

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Do use caution if it is absolutely necessary to operate mechanical plant within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

Appendix 8 – **Typical 3 Dimensional 'No-dig' Installation Methodology**

1. The construction area should be levelled by filling hollows and removing protrusions and hard landscaping. No soil excavation, other than the removal of the turf layer (no more than 25mm depth), should be carried out during this process and any filling material used should be porous, such as washed sand, to allow water and oxygen to reach the soil.

2. If any roots are to be pruned, sharp cutting tools should be used to ensure that damage to the root system is minimized. No roots, greater than 25mm in diameter should be pruned where possible.

3. Lay G4 Geotextile over existing ground between pegged timber edgings if used, ensuring overlaps of 300mm minimum. Temporarily retain G4 Geotextile with either stakes or weights.

4. Install 8 Number 12mm diameter steel pins across the area to be covered by one panel of the confinement system (the product). The pins shall be orientated in order that each panel of the product may be laid over and remain in an expanded state.

5. Install the product over steel pins; where necessary, remove surplus product with a craft knife.

6. Immediately adjacent panels of the product shall be connected by providing four staples at each overlap.

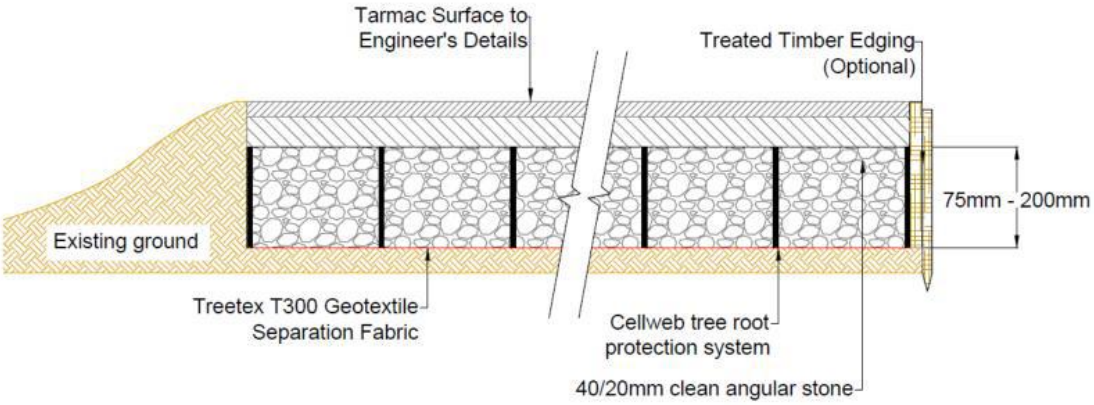
7. The expanded product panels shall be infilled with 40/20mm clean angular stone using a Mini Excavator, under the direction of a chartered arboriculturist. The product shall be overfilled by 50mm to create a surcharge over the product which protects the leading edges of the cells. The Mini Excavator may track over areas of infilled product panels only i.e. it must not be operated/driven/stored outside the area over which the product is installed and within the RPA.

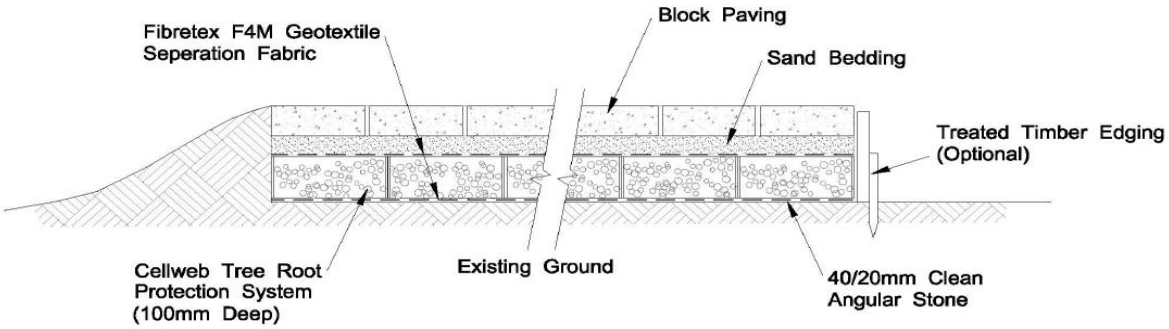
8. The infilled aggregate shall be rolled and whacked to ensure compaction.

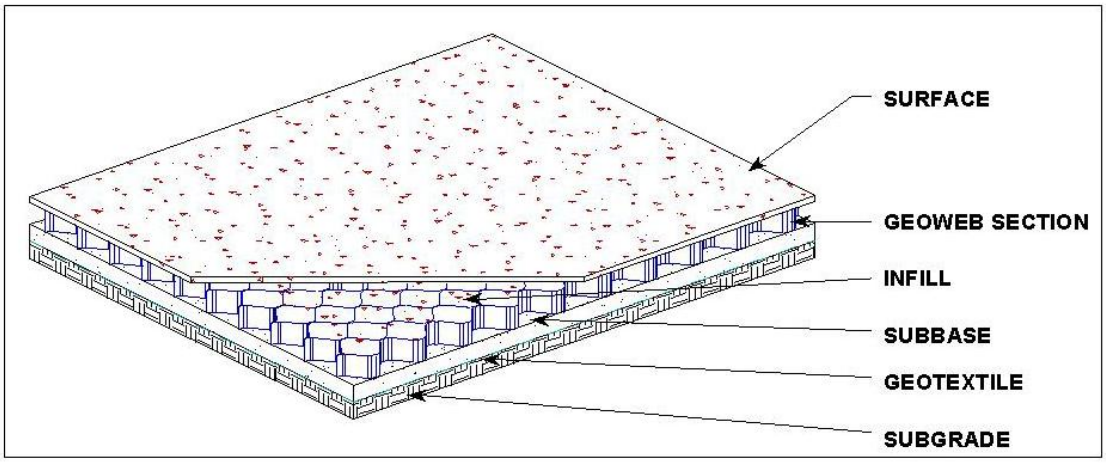
9. Apply final surface e.g. block paving, tarmac etc.

10. Soil may be mounded up to the cellweb system to create sloped ground separating the new surfacing with the existing ground but use caution not to raise the existing soil level within the RPA, particularly against the trees stem.

11. Product specific manufacturer's installation guidelines should be adhered to; their individual design specification will determine the cellweb depth.







Appendix 9 - **References**

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Appendix 10 – **Site guidance note 2 Fencing protected trees**

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Site guidance note 2:
Fencing protected trees

SGN 2: Explanatory notes and examples



Improvised use of drainage pipe wrapped around the trunk can provide an added layer of protection beneath a layer of plywood.



Boards attached to a supporting framework surrounding the trunk reduces the risk of accidental impact.



A wood frame around the trunk can be used to support a plywood surround.