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# Tree Report

Report of survey carried out on the
7th & 9th of January 2019.

## Land at The Beeches, Heyford Road, Steeple Aston, Oxfordshire.

Architect: Malcolm Payne Group Ltd.

Client: Mr Adrian Shooter.

Date: July 2019.

Reference: SB/JS/635.

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## 1.0 Brief and Objectives

1.1 To inspect and report on trees in the garden of The Beeches at Steeple Aston. The trees to be retained or removed on the site have been identified on the attached Tree Survey and Protection Plan. The proposed development will involve the demolition of the existing outbuildings including garage and office space, storage for the narrow gauge railway. At this Outline stage the proposal is to build one new dwelling with access via the existing driveway.

1.2 Identify and carry out a visual assessment of the structural condition of the trees and give brief recommendations for management work. The trees are recorded on the Tree Schedule. Photographs of the trees have been appended to help with identification.

1.3 Having regard to the proposed development of the site, to measure tree stem girth and to calculate the Root Protection Area (RPA) in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

1.4 To prepare recommendations for a Tree Protection Plan and Arboricultural Method Statements, to ensure the satisfactory protection of the retained trees throughout the construction period.

## 2.0 Scope / Limitations

2.1 The locations of the trees shown have been measured and plotted from the topographical survey by Interlock Surveys Ltd. There are other trees and shrubs on the plot of land and the adjoining property that form part of the wider tree cover and are a good distance from the proposed area of construction and outside the zone of possible effect.

2.2 The assessment and recommendations made in this report are based on a visual assessment made at ground level only and no invasive or checking of internal structure has been undertaken. Additional defects that are not visible from the ground level inspection may be present in the tree's root, stem and crown structure. The report does not guarantee the safety of any trees on site and Sacha Barnes Limited does not take responsibility for subsequent or future damage or injury caused by trees on the site. No guarantee can be given to the structural integrity of trees when placed under extremes of weather, especially high winds.

2.3 All comments on trees are based on observations made at the time of the site visits carried out on the 7th and 9th January 2019. The trees were inspected in winter season conditions and at the time of each visit the light was good and there were light winds.

## 3.0 Legislation - Notification of intention to carry out tree works.

3.1 It is understood that the trees are not protected by a Tree Preservation Order and the property is not within a Conservation Area. The trees shown for retention will be fenced and protected throughout the construction period. Attention has been given to their amenity value, the contribution they make to the character of the area and their local value to wildlife.

3.2 The Tree Schedule within this report includes certain recommended management works with a priority rating. The submission of this report to the Local Planning Authority shall be regarded as notification to carry out these works. Some tree felling has already been carried out in the interest of safety and to facilitate the survey work.

## 4.0 Assessment of Amenity Value

4.1 When considering trees for retention the British Standard 5837: 2012 requires an assessment to be made of their amenity value. These are normally categorised as A of High Quality, B of Moderate Quality and C of Poor Quality. (Refer to attached Table 1 – Cascade chart for tree quality assessment). Trees that are dead or in a dangerous condition and should be felled are given a U rating. Trees that have to be removed for the new development are also given a U rating. The majority of trees that have been identified for retention on the site have been given a B rating and the best specimens with a life expectancy 40 years + have an A rating.

4.2 There are a large number of Larch trees in the woodland belts that are fully mature with a limited life expectancy and will need to be felled within the next 10 – 15 years. Where it is safe to retain them and they contribute to the amenity of the tree group they have been given a C rating. There are also many trees that are of poor individual value but contribute to the character and amenity of the tree cover as a landscape feature.

## 5.0 Tree canopies and Root Protection Areas - Site access and the protection of trees within the Construction Exclusion Zone.

5.1 The measured Root Protection Area for each of the trees is shown on the Layout Plan. RPA's should be regarded as Construction Exclusion Zones unless development has been permitted within this area and special measures of mitigation are taken. Based upon the recommendations of BS 5837:2012, the Root Protection Area (RPA) is calculated at a certain radius from the base of each tree. This is the minimum area in $m^2$ that should be left undisturbed (without special measures of mitigation). The RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter for single stem trees when measured at 1.5 metres above ground level. The crown spread should not be used as a guide to the possible extent of major roots.

5.2 Unless special measures of surface protection are used (see method statements) the whole of the collective RPA shall normally be fenced and protected from any disturbance and excavation during the construction period. In this situation the extended access road passes through the groups of trees on either side of the existing narrow gauge railway track that has a deep hardcore base made up of limestone aggregate (see attached Track Details by Alan Keef Ltd showing the depth of construction on this site). Although the RPA's overlap this area the depth of the

proposed road construction will not exceed that of the stone aggregate below the tracks. In order to avoid the need for excavation below this level, and if required, a Low Impact CellWeb (or similar) form of construction will be used to protect tree roots. These measures are specified in the method statement recommendations below. Soil levels below the trees and within the Construction Exclusion Zone must remain as existing unless changes are essential and expressly required by the planning permission.

## 6.0 Measured Root Protection Areas

6.1 The Root Protection Areas for each of the trees inspected have been plotted on the Tree Survey and Layout Plan (See Site Layout Plan). They are based upon the tree stem diameter and measured as a radius from the base of the tree. The RPA measurements for each tree to be retained are given in red in the Stem Diameter column of the Tree Schedule.

## 7.0 Soils and Foundations

7.1 The soil type is understood to be a medium loam over Limestone brash but the depth and nature of any underlying clay is not known at the time of this survey. Trial pits should be dug to assess the nature of any underlying clay and the building foundations should be designed to take account of the proximity of trees on clay soils. Refer to the NHBC Standards – Chapter 4.2 for technical requirements, performance standards and guidance on the design of suitable foundations.

## 8.0 Tree Schedule Description

8.1 Please refer to each of the paragraphs on the Tree Schedule.

- The Tag Number identifies the tree and refers to the number and location on the Tree Survey Drawing (Note: Trees have not been physically tagged or numbered on site).
- The Species column gives the common and botanical name of each tree.
- The Height column records the height of each tree measured as the overall height from ground level.
- The Stem Diameter is then measured at 1.5m above ground level for single stem trees. The Root Protection Area measurements (as a radius from the base of the tree) are given in red.
- The ground clearance to canopy is the height between the ground and the first major limb.
- The Tree Spread records the maximum spread of the tree canopy at the four cardinal points.
- The Age Class is normally given as either young, early mature, mature or over mature.
- The Life Expectancy is given as the estimated timescale before the tree seriously declines and may have to be felled.
- The Physiological and Structural Condition is a record of certain factors that have been identified for attention, it is not a comprehensive diagnosis.
- The Management column lists the main and most urgent management works required to address any structural condition that could cause a hazard or problem on the site. This may also include a recommendation for more detailed and more frequent monitoring of the tree.
- The BS Classification gives an individual amenity rating in accordance with BS 5837: 2012.

- The Priority column is a recommendation of whether the work required is of High, Medium or Low Priority. In the context of proposed construction or demolition work, any essential felling or pruning has been given a high priority.

## 9.0 Arboricultural Impact Assessment

9.1 The Arboricultural Impact Assessment has considered the practical issues involved with demolition, the site preparation and removal of the existing hard surfaces, and the excavation and construction work in proximity to trees. It has identified the following potential risks. Each of these potential risks is then addressed in the Method Statement Recommendations that follow.

a) Damage to tree stems and overhanging branches caused by the operation of machinery and tall vehicles used for the demolition of the existing buildings, removing the railway tracks and base aggregate, ground clearance and excavation, improvements to the access for construction / delivery vehicles, the delivery and lifting of building materials and the construction work.
b) Damage to tree roots and tree health caused by the passage of vehicles and the rutting and compaction of soils. Also the erection of fencing and frequent passage of pedestrians / site operatives. A CellWeb surface shall be laid over the access road route to protect tree roots before other construction vehicles are allowed onto site.
c) Damage and severance of roots caused by excavation for re grading, soil removal and the construction of edging, foundations, laying hard surfaces and the installation of utilities. The existing soil levels within the tree Root Protection Areas will be kept as existing as far as possible. Where required, levels will be made up using porous granular materials. Protective barrier fencing will be erected immediately on the edge of the construction area. The Project Arboriculturalist will check that the line of the excavation is marked and the protective fencing is in place before any excavation takes place.
d) Damage caused by accidents, inadequate controls within the Root Protection Area and lack of awareness by site operatives.
e) Damage to tree stems, roots and branches and contamination of soils caused by the operation of machinery and storage of plant and machinery and materials, liquids, fuel oils and cement slurry.
f) Damage caused to tree roots by lack of moisture and air caused by soil compaction and the use of sealed and impermeable paving materials.
g) Damage caused by the lighting of fires too close to trees causing scorching, the desiccation of soils and drying / burning of roots.

## 10.0 Method Statement Recommendations - For the Protection of Trees during construction.

10.1 The following paragraphs are a strict guide to the measures of protection required to ensure the proper protection of the trees. They shall be applied to all future construction and building operations.

**a) Programme of Supervision and Monitoring of Protection (See method statement section attached)** - The Project Arboriculturalist must be involved in the site preparation and construction work at the earliest stage to brief the main contractor and site operatives on the importance of compliance with the method statements set out in this report. Then to be in attendance at each of the key stages of ground work and construction where there is any encroachment within the tree Root Protection Areas. Strict adherence to the arboricultural method statements and precautions will be essential.

b) **Tree Pruning and Management** - Prior to the commencement of building operations, the tree management work identified in the tree schedule as high priority shall be carried out. See para 11.0 below.

c) **Protective Barrier / Fencing – Construction Exclusion Zone** – The trees shall be protected in accordance with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations. On completion of any essential tree surgery works and before any further development works are started on site (including all ground works, scraping of top soil) protective 'Heras' fencing or scaffolding work (see attached detail) shall be erected on the alignment just outside the measured Root Protection Areas as shown on the Tree Survey Overlay drawing. This shall be erected and then inspected by the supervising agent before any materials or machinery is brought onto site and before any ground works are commenced. The protective barrier / fencing shall be set aside while the Low Impact Surface is laid for the access to the building plots and then replaced on the approved alignment. Then it shall not be removed or altered until the construction works are completed.

d) **Site Compound – Erection of site huts, delivery and storage of machinery and materials and parking of vehicles** - No materials, machinery, site huts, fuel oils or chemicals or cement / concrete shall be stored within the fenced Construction Exclusion Zones. The site compound /storage area and parking area must be sited outside the Root Protection Areas. All materials delivered to and stored on site will be contained within this compound. Measures will be taken to prevent the seepage or spillage of fuel oils, cement slurry and other liquids beyond the site compound. The contractor must be aware of the restricted height clearance caused by overhanging trees. Then to make sure that tall vehicles delivering machinery and materials are met on arrival at the site entrance and carefully guided into the site by a 'banksman' to avoid causing any damage to low limbs and overhanging branches.

e) **Lighting of Fires** - No fires shall be lit within 20 metres of any protected tree. This distance will need to be greater if there is any likelihood of strong winds. The contractor shall seek advice from the Cherwell District Council's Environmental Services before lighting any fires.

f) **Notices** – Tree protection notices shall be fixed to the protective fencing where they can clearly be seen from all approach angles. They shall also be displayed in site huts making it clear to all site operatives and visitors that the trees are protected. See attached detail of a typical notice.

g) **Protection of tree roots** – No excavations for foundations and road construction shall be made within the fenced Construction Exclusion Zone. Where excavation is essential in order to comply with Planning Permission, great care shall be taken to protect tree roots. Great care must be taken not to sever exposed roots greater than 25mm diameter. Should any roots of this size be found within the construction area they must be left intact and advice sought immediately from the Project Arboriculturalist. Where it is possible to retain large roots within an excavated area / trench they shall be clad with heavy duty plastic piping before the concrete is poured. This shall be carried out under the supervision of the Project Arboriculturalist. Any minor roots found within the permitted construction area that have to be cut, shall be cut clean with a sharp knife or secateurs. Should there be any delay in backfilling the excavated pits during dry or frozen conditions the face

of the exposed soil shall be covered with wet hessian and kept damp to prevent the soil and roots from drying out. It is recommended that the sides of excavated foundation pads near to the tree should be clad with a plastic 'slip' membrane before being filled in. This will help to deflect growing roots away from the new foundations.

h) **Surface treatment below trees and no dig construction** - It is important that the ground below the trees remains porous and well drained, allowing air and moisture to the tree roots. Before any ground works or construction takes place an assessment shall be made of the potential root area. Where any overlap occurs with the RPA's for the road access and other areas of hard surfacing a no dig construction will be used with a Low-invasive surface (LIS) and CellWeb sub base in filled with stone chippings. This will allow moisture and air to reach the tree roots and prevent the compaction of the soil around the roots (refer to Tree Survey and Layout Plan).

i) **Pedestrian access and working within the RPA** - For the construction and building works it will occasionally be necessary for pedestrian access to be taken within the Root Protection Area. The majority of this area is soft ground and this will need to be protected from heavy compaction. Where occasional access is required over soft ground the surface shall be protected by scaffolding boards. A single thickness of boarding will be sufficient for pedestrian loads. The ground beneath the boarding should be left undisturbed and is to be protected with a geo-textile fabric. If necessary, sand should be laid on the fabric to level the ground. The boarding should be left in place until the excavation and construction works are completed. Protective fencing must be erected along the edge of any hard surfaced area to prevent any damage to the stem bark or compaction of the ground below the tree.

j) **Construction within the RPA and Hand digging** – Construction requiring measures of excavation in the vicinity of trees should be avoided if at all possible but when it is established that no alternative options are available other than to construct within the Root Protection Area hand digging will be needed (refer to Method Statement – Hand digging in the vicinity of trees).

k) **Services and Utilities** – New services will be routed to cause the least possible disturbance to tree roots. They should normally avoid having to cross through a Root Protection Area but where this cannot be avoided the services must be grouped together along a narrow trench that will be excavated by hand in accordance with the construction method statement as set out in the report. See Method Statement – Hand digging in the vicinity of trees. It is understood that the mains services will be routed to the south of the property to avoid the need for any deep excavation between the main groups of trees.

l) **Soil Aeration and Aftercare** – On completion of all construction work and landscaping the site will be inspected by the Project Arboriculturalist and any areas of soil compaction found within the RPA's shall be thoroughly forked over. Where required a proprietary slow release fertilizer such as Enmag CRF shall be worked into the topsoil either by forking or by drilling with a hand held soil auger to the full satisfaction of the PA and taking care not to damage tree roots.

**11.0 Tree Pruning / Management Operation Recommendations (Refer to Tree Schedule).**

All tree work shall be carried out by a qualified and experienced Arboricultural Contractor in accordance with BS3998: 2010 'Recommendations for Tree Work' and in compliance with current industry best practice

**12.0 Ecology / Wildlife Interest**

12.1 It is understood that an ecological survey of the site has been carried out but the arboricultural brief did not require a more detailed survey of fauna and flora within the tree groups. The Tree Contractor must be vigilant for signs of roosting and if found should stop work immediately on that tree and report the matter to the Site Agent. All tree works must be carried out and completed during daylight hours and if possible, non-urgent tree works should be carried out before or after the bird nesting season, between the middle of March and the end of August.

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| **T1** | Larch *Larix decidua* | 15.0 | 380 Fell | 3.0 | 1.5 | 1.5 | 0 | 0 | Over mature | <3 | 95% dead. Beetle infestation on bark. | Fell | U | High |
| **T2** | Larch | 21.0 | 330 4.0 | 5.0 | 3.0 | 3.0 | 1.0 | 0 | Mature | <10 | In close group and suppressed on south side. Minor dead wood throughout. On 1.5m bank above driveway. | Monitor annually | B Group | Low |
| **T3** | Larch | 22.0 | 450 5.4 | 3.0 | 2.5 | 3.5 | 4.0 | 1.0 | Mature | <10 | In close group. Slight lean to east. Dead branches up stem. | Remove dead wood. Monitor annually. | B Group | Low |
| **T4** | Corsican Pine *Pinus nigra* | 22.0 | 420 5.0 | 11.0 | 2.5 | 2.0 | 2.5 | 1.5 | Mature | <10 | In close group. Top heavy crown. Minor dead wood. | Monitor annually | B Group | Low |
| **T5** | Corsican Pine | 23.0 | 660 8.0 | 11.0 | 2.5 | 5.0 | 6.5 | 3.8 | Mature | >10 | Fair form. Dominant in group. 3 large dead branches. | Remove dead wood. Monitor annually. | B Group | Medium |
| **T6** | Larch | 21.0 | 420 5.0 | 4.0 | 6.0 | 5.0 | 1.0 | 1.0 | Mature | <10 | Fair form. Leaning over driveway. Several dead branches. | Remove dead wood. Monitor annually. Possible fell. | B Group | High |
| **T7** | Larch | 22.0 | 700 8.4 | 3.0 | 8.3 | 3.0 | 6.2 | 4.2 | Mature | >10 | Good form. Dominant tree. Several dead branches. | Remove dead wood. Monitor annually. | B Group | Medium |
| **T8** | Larch | 21.0 | 520 6.2 | 4.0 | 5.2 | 3.3 | 6.0 | 3.0 | Mature | >10 | Fair form in group. Large dead branches throughout crown. | Remove dead wood. Monitor annually. | B Group. | High |
| **T9** | Larch | 22.0 | 450 5.4 | 5.0 | 4.0 | 2.4 | 3.2 | 2.5 | Mature | >10 | Fair form in group. Several dead branches. | Remove dead wood. Monitor annually. | B Group. | Medium |
| **T10** | Corsican Pine | 22.0 | 400 4.8 | 5.0 | 1.8 | 1.8 | 8.0 | 2.5 | Mature | >10 | Stem leans to south with crown spreading to south. Minor dead branches. | Monitor annually for lean towards building. | B Group | Low |
| **T11** | Corsican Pine | 24.0 | 880 10.6 | 6.0 | 4.0 | 4.7 | 8.0 | 5.6 | Mature | >15 | Major specimen. Spread of crown to south. Several | Remove dead wood. Monitor | B Group | High |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | dead branches over driveway. | annually. | | |
| **T12** | Oak *Quercus robur* | 10.0 | 610 7.3 | 1.6 | 1.8 | 5.2 | 9.0 | 8.0 | Mature | >30 | Poor form suppressed by T10. Major lean to S.W. Several dead branches. | Remove dead wood. | C | Low |
| **T13** | Himalayan Birch *Betula utilis Jacquemontii* | 9.0 | 180 2.2 Fell | 1.8 | 2.6 | 2.8 | 3.6 | 3.4 | Early mature | >40 | Good form. Minor decay in old pruning wounds on stem. | Minor prune back from overhead cable. Or fell for development and plant replacement. | B/U | High |
| **T14** | Larch | 22.0 | 700 8.4 | 4.0 | 6.0 | 6.0 | 4.5 | 2.5 | Over mature | <10 | Fair form at end of group. Dead branches throughout. On ground 1.5m above driveway. Cable resting on low branch. | Remove dead wood. Monitor annually. | B Group | High |
| **T15** | Larch | 13.0 | 300 Fell | 6.0 | 6.0 | 6.0 | 4.5 | 2.5 | Dead | 0 | Dead tree | Fell. | U | High |
| **T16** | Yew *Taxus baccata* | 5.0 | 200 2.4 | 0.5 | 0 | 3.0 | 2.5 | 3.0 | Early mature | >50 | Poor form leaning towards driveway. | Prune back from edge of driveway 1.0m | C | Medium |
| **T17** | Larch | 22.0 | 300 3.6 | 6.0 | 6.0 | 6.0 | 4.5 | 2.5 | Mature | >10 | Fair form in group. Top of stem bent to east. Minor dead wood. | NWR. Monitor annually. | B Group | Low |
| **T18** | Larch | 22.0 | 280 Fell | 9.0 | 1.0 | 3.0 | 1.0 | 1.0 | Over mature | <5 | Poor form. 85% dead. | Fell | U | High |
| **T19** | Corsican Pine | 25.0 | 580 7.0 | 17.0 | 4.0 | 5.0 | 3.7 | 3.8 | Mature | >15 | Good form. Ivy up stem to 15m. | Cut ivy at base. Monitor annually. | B Group | Medium |
| **T20** | Douglas Fir *Pseudotsuga menziessii* | 25.0 | 360 4.3 | 5.0 | 3.0 | 3.0 | 2.0 | 3.0 | Over mature | <10 | Dead branches up stem almost to top. | Remove dead wood and monitor | C | High. |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | | annually. Or fell. | | |
| **T21** | Larch | 24.0 | 380 4.6 | 12.0 | 2.0 | 2.0 | 2.5 | 2.5 | Over mature | <10 | Dead wood throughout crown. | Remove dead wood. Monitor annually. | B Group | High |
| **T22** | Beech *Fagus sylvatica* | 11.0 | 230 2.8 | 3.0 | 1.0 | 3.5 | 4.0 | 4.0 | Early mature | >50 | Fair form. Twin stem rising from low fork at 1.5m. One stem is damaged. | Remove damaged stem above fork. | C | Medium |
| **T23** | Beech | 11.0 | 200 80 2.2 | 0 | 1.5 | 3.0 | 4.0 | 4.0 | Early mature | >50 | Twin stem with a cross brace limb cutting deep into weaker stem. | Remove weaker stem at base. | C | Medium |
| **T24** | Larch | 24.0 | 380 4.6 | 5.0 | 1.0 | 6.0 | 3.8 | 3.5 | Mature | >10 | Fair form leaning to east. Minor dead branches up stem. | NWR. Monitor annually. | B Group | Low |
| **T25** | Yew | 5.0 | 200 2.4 Fell | 0 | 2.0 | 3.4 | 2.8 | 2.5 | Early mature | >50 | Poor form spreading over driveway. | Prune back from edge of driveway by 1.0m. Or fell for development | C/U | High |
| **T26** | Beech | 24.0 | 1.0 12.0 | 3.0 | 7.5 | 7.0 | 6.8 | 7.8 | Mature | >40 | Good form with major fork at 2.0m. Two main stems from fork. Dead branches in lower crown. | Remove dead wood. Monitor fork annually. | A | Low |
| **T27** | Yew | 8.0 | 240 3.0 | 0 | 3.6 | 4.0 | 4.0 | 3.7 | Mature | >50 | Fair form. Dead branches in lower crown. Spreading towards driveway. | Prune back from edge of driveway by 1.0m | C | High |
| **T28** | Lime *Tilia x europaea* | 28.0 | 920 11.0 | 3.5 | 3.5 | 4.5 | 7.0 | 8.0 | Mature | >30 | Good form. Dead branches throughout crown. Major low limb over driveway with dead branches. Major low limb to west over building. | Remove dead wood, lowest limb over driveway and lowest limb over | B | High. |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | | building. Monitor annually. | | |
| **T29** | Douglas Fir | 28.0 | 500 6.0 | 3.5 | 4.5 | 7.0 | 4.0 | 3.5 | Mature | >15 | Good form. Several dead branches up stem. | NWR. | B | Low |
| **T30** | Ash *Fraxinus excelsior* | 20.0 | 280 3.4 | 3.0 | Est 9.0 | 0 | 0 | 3.5 | Mature | >15 | Poor form with severe lean to north over the neighbor's garden and cable. Large broken branch above cable. | Reduce limb extending to north by 5.0m and remove broken branch. Monitor lean annually. | C | High |
| **T31** | Larch | 22.0 | 430 5.2 | 4.0 | 4.0 | 3.0 | 3.0 | 1.5 | Mature | >10 | Good narrow form. Stem touching timber building. Several dead branches up stem. | Remove dead wood. Monitor annually for potential damage to building. | B Group | High |
| **T32** | Ash | 20.0 | 280 3.4 | 3.0 | Est 9.0 | 0 | 0 | 3.5 | Mature | >15 | Poor form with severe lean to north over the neighbor's garden. | Reduce crown on north side by 2.5m. Monitor lean annually. | C | High |
| **T33** | Larch | 23.0 | 640 7.7 | 3.5 | Est 8.0 | 4.0 | 4.5 | 4.5 | Mature | >10 | Good form. Several large dead branches on north side. | Remove dead wood. Monitor annually. | B Group | High |
| **T34** | Ash | 12.0 | 200 180 2.7 | 3.0 | 8.0 | 2.5 | 3.0 | 3.0 | Early mature | >50 | Two stems. Minor stem leans to north. Better stem on west side. Large dead branch in crown. | Remove leaning stem on north side. | C | Medium |
| **T35** | Larch | 24.0 | 700 8.4 | 5.0 | Est 8.0 | 3.0 | 3.0 | 5.0 | Mature | >10 | Good form. Ivy up stem to 12.0m. Several large dead branches. | Remove dead wood. Cut ivy at base. | B Group | High |
| **T36** | Wild Cherry *Prunus avium* | 11.0 | 450 Fell | 3.0 | Est 5.0 | 4.0 | 1.5 | 0 | Mature | <10 | Poor form. Leaning to northeast. Smothered in | Fell | U | Medium |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | ivy. | | | |
| **T37** | Sycamore *Acer pseudoplatanus* | 13.0 | 350 320 4.7 | 3.5 | Est 5.0 | 3.0 | 3.5 | 3.0 | Mature | >30 | Good form. Fork near base. Ivy up stem to 6.0m. Minor dead branches. | Remove dead wood. Cut ivy at base. | B Group | Medium |
| **T38** | Wild Cherry | 6.0 | 200 150 Fell | 3.0 | 4.5 | 0 | 1.0 | 3.0 | Mature | <10 | Poor specimen. Snapped at top. | Fell | U | High |
| **T39** | Ash | 18.0 | 380 4.6 | 3.0 | 4.5 | 4.5 | 6.0 | 2.5 | Mature | >30 | Fair form. Twin stem from 1.5m. Ivy up stem to 8.0m. | Cut ivy at base. Monitor fork annually. | B Group | Medium |
| **T40** | Ash | 20.0 | 360 4.3 | 3.0 | Est 5.5 | 5.8 | 1.0 | 3.5 | Mature | >20 | Poor form below Pine. Several large dead branches and large dead branch from Pine. | Remove dead wood and hanging dead Pine branch. | C | Medium |
| **T41** | Corsican Pine | 26.0 | 900 10.8 | 2.5 | Est 9.0 | 6.5 | 2.5 | 3.0 | Mature | >20 | Fair form. Twin stem from 1.3m. Heavy lean to north. Possible danger in high winds. | Remove 2 low limbs on north side. Monitor fork and lean annually. | B Group | Medium |
| **T42** | Larch | 24.0 | 300 Fell | 15.0 | 2.0 | 1.5 | 1.0 | 1.5 | Over mature | <10 | Poor form. Several large dead branches at top. | Fell | U | Medium |
| **T43** | Larch | 11.0 | 300 3.6 | 10.0 | 4.0 | 1.0 | 3.0 | 2.5 | Mature | <10 | Fair form. Several large dead branches. | Remove dead wood. | C | High |
| **T44** | Ash | 10.0 | 180 Fell | 1.8 | Est 8.0 | 5.0 | 2.0 | 2.0 | Mature | <10 | Poor form with cavity in stem at 2.0m.Large dead branches. | Fell | U | Medium |
| **T45** | Ash | 10.0 | 350 Fell | 1.8 | Est 8.0 | 5.0 | 2.0 | 2.0 | Mature | <10 | Poor form with large dead branches. | Fell | U | Medium |
| **T46** | Corsican Pine | 26.0 | 680 8.2 | 4.5 | Est 8.0 | 4.5 | 4.0 | 6.0 | Mature | >10 | Fair form. Large dead branches on north side. One very large extending | Remove large extending limb and dead | B | High |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | limb on north side. | branches. Monitor annually | | |
| **T47** | Ash | 10.0 | 380 Fell | 3.5 | Est 8.0 | 2.5 | 0 | 3.0 | Mature | <10 | Poor form. Heavy lean to north. | Fell | U | Medium |
| **T48** | Larch | 22.0 | 280 3.4 | 8.0 | 3.0 | 1.0 | 1.5 | 3.0 | Over mature | <10 | Narrow form with dead branches throughout. | Remove dead wood and monitor annually. Or fell. | C | Medium |
| **T49** | Ash | 14.0 | 500 Fell | 1.6 | Est 8.0 | 4.0 | 0 | 3.0 | Mature | <10 | Poor form. Heavy lean to north with crack on underside of leaning stem. | Fell | U | Medium |
| **T50** | Larch | 23.0 | 290 3.5 | 7.0 | 7.0 | 2.0 | 2.0 | 2.0 | Mature | <10 | Fair form. Dead branches throughout. One large extending limb on north side. | Remove dead wood and extending limb on north side. Monitor annually. | B Group | Medium |
| **T51** | Scots Pine *Pinus sylvestris* | 11.0 | 300 3.6 | 3.5 | 6.0 | 1.0 | 0 | 1.5 | Mature | >10 | Poor form leaning to north. | Remove 2 low limbs on north side. | C | Medium |
| **T52** | Larch | 23.0 | 350 4.2 | 6.0 | 3.0 | 3.0 | 4.5 | 3.5 | Mature | >10 | Fair form. Several dead branches up stem. | Remove dead wood. Monitor annually. | B | Medium |
| **T53** | Ash | 16.0 | 280 3.4 | 3.3 | 4.5 | 2.0 | 1.5 | 3.0 | Mature | >20 | Fair form with fork at 2.4m. | NWR | C | Low |
| **T54** | Ash | 16.0 | 250 Fell | 3.0 | 5.0 | 0 | 1.5 | 6.0 | Mature | >10 | Poor form leaning to north. Several dead branches. | Fell | U | Medium |
| **T55** | Corsican Pine | 30.0 | 650 7.8 | 10.0 | Est 8.0 | 8.0 | 6.0 | 3.5 | Mature | >15 | Good form. Large dead limb on west side. | Remove dead limb on west side. | B Group | High |
| **T56** | Ash | 15.0 | 450 150 100 | 0 | Est 6.0 | 4.5 | 0 | 2.5 | Mature | >20 | Poor form leaning to north. Decayed scar on north side of stem. Two minor stems | Remove dead wood and 2 minor stems. | C | Medium |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | 4.8 | | | | | | | | from base. | Monitor decay in stem. | | |
| **T57** | Corsican Pine | 24.0 | 800<br>9.6 | 6.0 | 4.8 | 3.0 | 4.5 | 6.5 | Mature | >15 | Good form with acute fork at 6.0m. Several dead branches. | Remove dead wood. Monitor annually. | B Group | Medium |
| **T58** | Douglas Fir | 26.0 | 460<br>5.5 | 11.0 | 4.5 | 2.5 | 3.5 | 3.5 | Mature | >15 | Good form. Dead branches up stem. | Remove dead wood. Monitor annually. | B Group | Medium |
| **T59** | Lime | 26.0 | 600<br>7.2 | 8.0 | 4.5 | 4.6 | 5.0 | 4.0 | Mature | >25 | Good form. Several dead branches at top of crown. | NWR. Monitor annually. | B | Low |
| **T60** | Norway Maple<br>*Acer platanoides* | 9.0 | 250<br>3.0<br>Fell | 2.5 | 4.3 | 3.3 | 4.5 | 1.0 | Early mature | >50 | Fair form but suppressed by T61. | NWR<br>Fell for development and plant replacement. | C/U | High |
| **T61** | Beech | 10.0 | 280<br>3.4<br>Fell | 4.0 | 4.0 | 4.0 | 2.5 | 2.0 | Early mature | >50 | Good form but one sided due to T62. | NWR<br>Fell for development and plant replacement. | B/U | High |
| **T62** | Beech | 26.0 | 620<br>7.4 | 6.0 | 5.5 | 6.0 | 7.0 | 4.5 | Mature | >40 | Good form. Major specimen tree. | NWR. Monitor annually. | A | Low |
| **T63** | Yew | 6.0 | 200<br>2.4 | 1.0 | 1.5 | 4.0 | 1.5 | 3.0 | Early mature | >50 | Poor form. Suppressed by T64. | NWR | C | Low |
| **T64** | Beech | 26.0 | 480<br>5.8 | 5.0 | 4.5 | 4.0 | 3.5 | 2.0 | Mature | >40 | Good form. Major specimen in close group. | NWR | B Group | Low |
| **T65** | Beech | 26.0 | 560<br>6.7 | 3.5 | 5.3 | 4.0 | 4.0 | 5.0 | Mature | >40 | Good form. Major specimen tree. | NWR | A | Low |
| **T66** | Larch | 23.0 | 230<br>Fell | 8.0 | 2.5 | 2.5 | 0 | 0 | Mature | <10 | Poor leaning form. Dead branches to top. | Fell | U | Medium |
| **T67** | Lime | 26.0 | 480<br>5.8 | 1.5 | 4.5 | 4.5 | 2.5 | 4.7 | Mature | >40 | Good form. Four low limbs with dead wood. Ivy up to | Remove 4 low limbs. Cut ivy at | B | Medium |

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | 15.0m. | base. | | |
| **T68** | Corsican Pine | 30.0 | 600 7.2 | 20.0 | 3.6 | 5.5 | 6.0 | 3.5 | Mature | >40 | Good form with twist at top of stem. | NWR. Monitor annually. | A | Low |
| **T69** | Corsican Pine | 30.0 | 860 10.3 | 10.0 | 6.5 | 5.0 | 6.0 | 5.8 | Mature | >10 | Good form. Dead branches up stem. Crown thinning at top. Tarmac platform at base. | Remove dead wood. Care with demolition of platform. Monitor annually. | B | High |
| **T70** | Norway Maple | 8.0 | 260 Fell | 1.8 | 3.0 | 1.5 | 1.5 | 3.0 | Mature | <10 | Poor specimen. Dead at top and several dead branches. Bracket fungus on stem at 1.0m. | Fell | U | Medium |
| **T71** | Larch | 22.0 | 260 3.0 | 10.0 | 1.5 | 3.0 | 2.0 | 1.5 | Mature | <10 | In tight group. Stem leans to east. Base against platform. Dead branches up stem. | Remove dead wood. Care with demolition of platform. Monitor annually. | C | Low |
| **T72** | Beech | 13.0 | 350 4.2 | 4.0 | 3.0 | 4.5 | 4.5 | 6.0 | Mature | >40 | Fair form in tight group against platform. | NWR. Care with demolition of platform. | B | Low |
| **T73** | Corsican Pine | 30.0 | Est 700 8.4 | 6.0 | 6.0 | 7.0 | 8.5 | 10. 0 | Mature | >15 | Good form. Stem enclosed in structure of building. Several dead branches up stem. | Remove dead wood. Examine feasibility of retaining the tree when the building is demolished. If retained monitor annually. | B Possible U | High |
| **T74** | Yew | 12.0 | 440 5.3 | 1.7 | 5.3 | 5.0 | 4.0 | 4.0 | Mature | >50 | Fair form. Base is at base of building. Crown spreading over roof and | Prune to raise crown by 1.5m over roof. Care | B | Medium |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| | | | | | | | | | | | around stem of T76. | with demolition of building. Monitor annually | | |
| **T75** | Ash | 16.0 | 250<br>3.0 | 3.0 | 0 | 3.5 | 4.6 | 4.5 | Mature | >40 | Poor form with 2 twists in stem. Dead branches in lower crown. | Remove dead wood. | C | Low |
| **T76** | Corsican Pine | 30.0 | 750<br>9.0 | 3.5 | 8.0 | 3.8 | 5.5 | 11.0 | Mature | >15 | Good form. Stem enclosed on 3 sides in structure of building with concrete foundation over roots. Dead branches up stem. | Remove dead wood. Examine feasibility of retaining the tree when the building is demolished. If retained then monitor annually. | B<br>Possible U | High |
| **T77** | Douglas Fir | 8.0 | 260<br>3.0 | 3.5 | 1.8 | 3.0 | 3.0 | 2.0 | Mature | >15 | Poor form with suppressed leader. Several dead branches. | NWR | C | Low |
| **T78** | Douglas Fir | 22.0 | 450<br>Fell | 16.0 | 2.0 | 6.0 | 2.5 | 0 | Mature | >10 | Crown suppressed on west side with all weight to east over building. Top heavy with dead branches up stem. | Fell | U | Medium |
| **T79** | Yew | 11.0 | 480<br>5.8 | 1.8 | 4.5 | 5.5 | 6.5 | 3.2 | Mature | >50 | Major lean to south over building. | Remove 5 lowest limbs on south side over building. | C | High |
| **T80** | Beech | 18.0 | 500<br>6.0 | 1.5 | 6.0 | 6.6 | Est 7.0 | 7.3 | Mature | >50 | Good form with ivy up stem to 8.0m. | Cut ivy at base. | A | Low |
| **G1** | Group of 4 Leylandii Cypress and 1 Larch. The Cypress are early mature. Av height 10.0m and stem diameter 220mm. NWR. BS classification C. Low priority.<br>2.6 | | | | | | | | | | | | | |

Tree Schedule – The Beeches, Steeple Aston.

| Tag No. | Species | Height [m] | Stem Dia. [mm] RPA | Ground Clearance to Canopy | Tree spread (m) | | | | Age Class | Life Exp (Y) | Physiological and structural condition | Management | BS 5837 - 2012 classification | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | N | E | S | W | | | | | | |
| G2 | Belt of mature Pine with 1 Ash and 6 Larch against boundary. 3 early mature Pine along frontage with understory of Laurel and Holly. Larch up to 22.0m with av stem diam of 300mm. Early mature Pine up to 9.0m with av stem diam of 210mm. Remove dead wood from Larch. BS classification B as a group. Low priority. 3.6 | | | | | | | | | | | | | |
| T81 | Douglas Fir | 30.0 | 430 5.2 | 2.5 | 3.5 | 5.0 | 5.0 | 5.0 | Mature | >15 | Good form. One large snapped branch at 15.0m on southeast side of stem. | Remove broken branch. Monitor annually. | B | High |
| T82 | Corsican Pine | 30.0 | 650 7.8 | 11.0 | 6.0 | 3.5 | 3.5 | 5.0 | Mature | >15 | Twin stem rises from acute fork at 6.0m. | NWR. Monitor annually. | B | Low |
| T83 | Corsican Pine | 28.0 | 660 8.0 | 6.0 | Est 8.0 | 6.0 | 3.6 | 7.0 | Mature | >15 | Fair form. Twin stem rises from acute fork at 4.0m. Tree Leans to north. Several dead broken branches up stem. Vulnerable to wind damage. | Remove dead branches. Monitor lean and fork annually. | B | Medium |
| G3 | Group of 9 mature Larch, 2 early mature Ash, 2 early mature Yew and 1 young Pine. Av height of Larch 20.0m with av stem diam of 300mm. Dead branches up stems of Larch. One Larch is leaning heavily to east and should be felled. Also one dead Larch (on west side of group). The 2 Yew are multi stem but healthy specimens. The Larch are fully mature with limited life expectancy of <10. Crown spread south for Yew is 3.0m and crown spread south for Larch is av 5.0m. BS classification B as a group. Removal of dead Larch and leaning Larch is High priority. 3.6 | | | | | | | | | | | | | |
| T84 | Ash | 18.0 | 380 4.6 | 4.0 | 7.0 | 6.3 | Est 5.0 | 6.0 | Mature | >30 | (In adjacent property) Good form. Dead wood throughout crown. Ivy up stem to 10.0m. | With owner's permission. Remove dead wood and cut ivy at base. | B | Low |
| T85 | Sycamore | 20.0 | 380 380 5.4 | 3.5 | 3.5 | 6.0 | Est 6.0 | 6.0 | Mature | >40 | (In adjacent property) Good form with twin stem from base. Minor dead branches. | NWR | A | Low |
| | | | | | | | | | | | | | | |

# Photographic record

Photograph 1 – The entrance to The Beeches with trees T1 to T13 to the left of the driveway and trees 14 to 28 to the right.

Photograph 2 – Looking back down the driveway towards the entrance with trees T1 to T13 to the right of the driveway and T14 to T28 to the left. The Silver Birch on the right is tree T13 and the large Lime on the left is tree T28.

Photograph 3 – Larch trees T33 and T35 with the small Ash T34 in between.

Photograph 4 – Ash tree T39 to the left and Larch tree T35 to the far right.

Photograph 5 – Pine tree T41 to the far right of picture and Maple tree T60 to the left of the track. The mass of trees also includes trees T42 to T68 on either side of the trackway.

Photograph 6 – The stem of Beech tree T65 to the left of picture with Laurel bushes in groups G1 and G2 in the background to the right.

Photograph 7 – The wide trackway leading between the tree groups on either side. Where the track divides off to left you can see Lime tree T59, Fir tree T58 and Pine tree T57 between the diverging track lines.

Photograph 8 – Trees T65, T66 and T67 to the left of the tracks and Trees T50 (Larch) to Pine tree T55 to the right. Tree groups G1 and G2 are to the right of the trackway in the background.

Photograph 9 – Looking back to the mass of trees with Pine tree T55 to the left (not far left) and Pine tree T73 to the far right behind the station building.

Photograph 10 – Pine tree T69 to the left of picture and Yew tree T79 to the far right behind the station pavilion building.

Photograph 11 – The base of Pine tree T69 against the back of the raised platform.

Photograph 12 – The base of Maple tree T70, Larch tree T71 and Beech tree T72 at the back of the raised platform.

Photograph 13 – Pine tree T76 with the stem enclosed on three sides by the concrete base of the building.

Photograph 14 – Fir trees T81 to the far right of picture with Pine trees T82 and T83 and tree groups G2 and G3 towards the northwest corner of the site.

Photograph 15 – Large Ash tree T84 to the left of centre picture and Sycamore tree T85 to the right of centre.

Table 1 **Cascade chart for tree quality assessment**

| Category and definition | Criteria (including subcategories where appropriate) | | | Identification on plan |
|---|---|---|---|---|
| **Trees unsuitable for retention** (see Note) | | | | |
| **Category U**<br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years | • Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)<br>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline<br>• Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality<br>*NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.* | | | See Table 2 |
| | **1 Mainly arboricultural qualities** | **2 Mainly landscape qualities** | **3 Mainly cultural values, including conservation** | |
| **Trees to be considered for retention** | | | | |
| **Category A**<br>**Trees of high quality** with an estimated remaining life expectancy of at least 40 years | Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue) | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | See Table 2 |
| **Category B**<br>**Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation | Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality | Trees with material conservation or other cultural value | See Table 2 |
| **Category C**<br>**Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories | Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits | Trees with no material conservation or other cultural value | See Table 2 |

# Programme of Supervision and Monitoring of Protection.

**Programme**
The following programme of supervision and monitoring is governed by operational constraints and subject to change. The Project Aboriculturalist must be given prior notice of any changes to the schedule. (See Arboricultural Supervision / Monitoring Description below)

**Phase 1 – Pre development stage**

- Pre-commencement site meeting between Project Arboriculturalist, (PA); Project Manager, (PM); Project Architect (Arch); Site Manager (SM) and Contractor (Con). The Local Planning Authority (LPA) shall be informed and given the opportunity to attend.
- Permitted tree removals / pruning of trees directly or indirectly impacted by development.
- Induction and arboricultural awareness meeting with the above and all site operatives. Copies of the Summary of Tree Protection Measures shall be issued.
- Installation of all ground protection measures including fencing, signage and ground protection measures in accordance with the requirements of the Tree Report / Methodology Statement.
- Final Inspection and signing off of all tree protection measures by PA. To be recorded on the Site Monitoring Report Sheet.

**Phase 2 – Development construction stage**

- Phase 2 is subject to monthly monitoring visits by the PA. These inspections may become more or less frequent as considered appropriate by the PA or as required by the PM, Arch, SM, Con or LPA.
- Daily inspections and monitoring of the tree protection elements will be the responsibility of the PM, SM or Con. The Project Arch should also check on these measures when visiting the site. Any changes, adjustments of damage caused to the tree protection measures shall be recorded on the Site Monitoring Report Sheet and this shall be signed and retained on site as a site record. The PA, Arch or LPA may ask for a copy of these records at any time.
- All the above personnel will have delegated powers to require the immediate reinstatement / repair of any tree protection measures that may have been damaged or breached by construction work.
- Access to site by vehicles will be via the identified entrance / entrances. (These will normally be shown on the Project Arch's site plan or the PA's Tree Protection Plan.
- Installation of site compound / huts / WC / materials / fuels, must be outside of all exclusion areas shown on the Tree Protection Plan. (These will normally be fenced).
- Temporary ground works and services - No ground works or underground services are permitted within the tree protection areas. No temporary overhead cables, pipes or services shall be routed through the tree protection areas unless first approved by the PA. This shall be recorded on the Site Monitoring Report Sheet.
- Start of demolition /groundwork/ excavation - The PM or SM shall give the PA and LPA seven days notice of the start of any demolition, groundwork or excavation on site.
- Completion of development construction stage and reinstatement. – The PM shall inform the PA of the completion of the development construction stage and none of the tree protection measures shall be removed until the PA has signed them off on the Site Monitoring Report Sheet.

**Phase 3 – Post development construction stage.**

- Removal of protective fencing and protective surfacing and reinstatement of site.
- Final inspection and signing off of all tree protection measures by the PA.
- Landscaping contractor / operatives briefed by the PA.

# Arboricultural Supervision / Monitoring Description.

Arboricultural monitoring involves the inspection of the site works, the trees, tree protection measures and the completion of the Site Monitoring Report Sheet. The S.M.R. Sheet must be signed by the Project Arboriculturalist (PA) and Project Architect, Project Manager (PA) or Contractor (Con). If required, copies will be posted to the Local Planning Authority (LPA).

The monitoring visit is to ensure that the approved tree protection measures are continually adhered to and if remediation is required, that this is promptly addressed and made clear to all parties.

Arboricultural supervision is to be carried out at all crucial stages in the Development Programme to ensure detailed tasks are carried out in accordance with the requirements of the Tree Report / Methodology Statement. At all points as detailed above and especially during:

- Remedial tree works as recommended within the Tree Report.
- Erection of tree protection fencing. (See detail within Tree Report).
- Any demolition or excavation near to the edge of Root Protection Areas.
- Hand excavations for any tree protection fencing posts.
- Any essential temporary incursion into the RPA's / Construction Exclusion Zone.
- Any exposure and pruning of roots over 50mm diameter found within excavations.

This supervision will require the PA to be present throughout the task, to ensure all the arboricultural objectives are met. If the task is to take a long period of time, provided the PA is satisfied, the supervision may be reduced to telephone contact between the PA and PM or Con.

The LPA Arboriculturalist will have free access to the site (site security and health and safety requirements to be observed at all times) and will pass any recommendations to the PA or PM.

Remedial tree works as recommended within the Tree Report should normally be carried out prior to the erection of the tree protective fencing, however, it may be expedient to mark out the extents of any fencing and essential access to indicate if any crown lifting will be required.

Temporary site access across any areas designated for low impact (no dig) measures may be achieved by use of the Cellweb construction (See detail within Tree Report). Any temporary protective surfacing must be capable of supporting the expected loads to avoid compaction, rutting or disturbance to soil within or close to the Root Protection Areas.

The PA will inspect the removal of any temporary surface within Root Protection Areas (Where applicable) and the reinstatement with top soil. The PA will sign off the final Site Monitoring Report Sheet when all reinstatement has been completed.

# Method Statement:-
# Low-invasive Surface (LIS) Construction Methodology

## Specification and method statement for the construction of hard surfaces, within the Tree Root Protection Area at The Beeches, Steeple Aston.

The following design criteria for low-invasive surfaces (LIS) will need to be applied when installing new hard surfacing within the Root Protection Areas (RPAs) of retained trees:

Maintain oxygen diffusion through new surface to the rooting area (3-12% by volume).

Maintain sufficient passage of water to the rooting area (12-40% by volume).

Maintain existing ground levels to avoid unsustainable root damage (severance and/or asphyxiation).

Avoid compaction by maintaining a soil structure sufficient to sustain root growth (soil bulk density below 1.6g/cc).

The above criteria will provide the conditions for continued tree growth, stability and health.

Site analysis of the soil type and its Californian Bearing Ratio (CBR) will determine the specific depth of construction to be adopted for the LIS. For the site at The Beeches a 150mm depth of construction is the minimum recommended for the road construction. The depth of construction required for the road must be confirmed by a Structural Engineer.

1. The use of a three dimensional cellular confinement system within an LIS aims to fulfil the above design criteria and is the approach recommended in British Standard 5837:2012. This system maintains the passage of oxygen and water to root systems; avoids root loss through severance or asphyxiation and minimises the potential for soil compaction. It is achieved by using Geotextile membranes and the introduction of the three dimensional Cellular Confinement System (CCS). The CCS is laid directly onto the unchanged soil levels within the Root Protection Area (RPA) of retained trees. The Cellweb Confinement System by Geosynthetics Limited is recommended.

2. Retained trees must first be protected during all stages of the development including demolition, by the erection of fencing as shown in the Tree Report and with reference to specifications and the Tree Protection Plan (TPP). Installing the LIS may require the re-positioning of the tree protection fencing to a secondary location in line with TPP and associated method statement. This follows the recommendations set out in Section 9 and 11 of the British Standard (BS) 5837:2012 ‘Trees in Relation to design, demolition and construction – Recommendation’.

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

4. Ideally, the LIS should be installed between May and October when the ground is driest and least prone to compaction. The approved wearing course is to be laid over

the CSS. Where the LIS covers in excess of 20% of the RPA or is wider than 3m within the RPA, the new surface should be constructed in a manner to permit infiltration of moisture and gaseous diffusion.

## Stages for Installation of the Cellweb Cellular Confinement System.

**Stage 1** **Erection of Tree Protection Fencing** (see Tree Protection Plan).

**Stage 2** **Removing existing vegetation / debris** by using with hand tools only.

**Stage 3** **Remove existing hard surfaces** (paving, tarmac etc.). Machinery operating on existing hard surfaces or outside the RPAs and trees canopies could, under specialist arboricultural supervision be used to carefully remove existing wearing surfaces. The sub base of existing surfaces or foundations should be left in situ where possible to avoid unnecessary root disturbance and provide a base for a new LIS.

**Stage 4** **Install the non-woven Geotextile** directly over soil grade level (levelled where necessary, by the infill of no-fines gravel, washed aggregate or structural soil (min. 20% sand content) and fix in place.

**Stage 5** **Lay the CCS over the Geotextile**, which is secured open under tension during the infill process with steel staples or wooden pegs.

**Stage 6** **Install kerbs and edgings** directly on top of existing soil grade level. (For light structures, a treated peg and board may be acceptable. For more substantial structures, railway sleepers, or haunched concrete blockwork will be appropriate).

**Stage 7** **Fill the CCS** ensuring any machinery works only on already filled areas. Typical infill consists of no fines angular granular material 20-40mm, **which will remain un-compacted.**

**Stage 8** **Install wearing surface.**

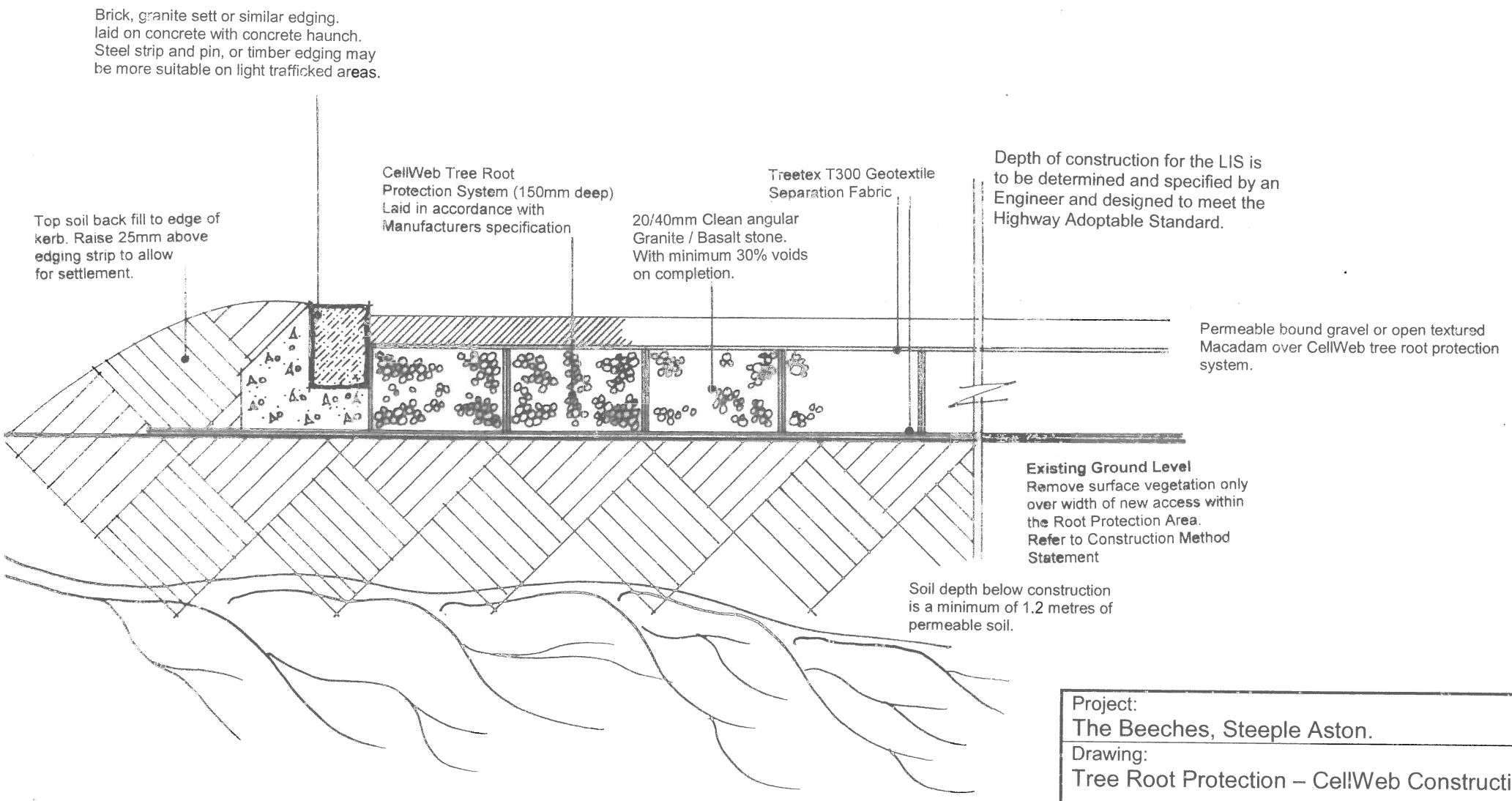
5. The effect of the CSS produces a **composite mattress,** with high flexural stiffness and load support capabilities. This will prevent soil rutting and mechanical root damage by confining the porous infill materials within the CCS.

6. The use of a non-woven Geotextile beneath the cellular mattress acts as a separation/filtration layer. The CCS should be filled with no-fines stone in the 20-40mm range. This operation will be carried out avoiding the use of heavy machinery within the RPA of retained trees. Once filled, the perforated cellular wall structure provides mechanical interlock for infill materials, increasing the shear strength while allowing lateral drainage and gaseous exchange.

7. The system will be used as permanent base for a wearing course and/or will provide a temporary site access for root protection. The recommended thickness available for CCS material is 150mm.

8. A pre-commencement site meeting with the appointed Contractor, Site Manager, Project Arboriculturalist, and appointed Engineering Consultant, will agree the stages

and specification for the installation of the LIS. Where required the Local Authority Tree Officer should also be present. The Project Arboriculturalist will be present to oversee any works within the RPAs of the retained trees.

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|---|---|
| Project: The Beeches, Steeple Aston. | |
| Drawing: Tree Root Protection – CellWeb Construction | |
| Scale: 1:10 @ A4 | Date: February 2019 |
| Drawing No. SB/JS/CW | |

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# Method Statement – Hand digging in the vicinity of trees.

## 1.0 Tree/Root Damage – How it can occur

1.1 The majority of tree roots exist in the upper 600mm to 1000mm of soil. Excavations of the soil in the vicinity of trees can be harmful to tree roots and consequently the tree.

1.2 Tree root systems comprise two main root types, those that anchor the tree in the ground and those that supply the tree with water and elements. Roots that support the tree are woody and those that are involved with the conduction of water and nutrients are non-woody or fibrous. Both types of roots can be damaged directly by severing or crushing. Fibrous roots can die from asphyxiation by soil compaction and/or soil contamination. Trees differ in their tolerance of root loss or disturbance, according to their species and condition or both.

1.3 Generally the larger the root damaged, the greater the impact on the tree.

## 2.0 Hand Digging in the Vicinity of Trees – the Process

2.1 First it is necessary to consider all available options to construct beyond the likely range of influence or the area below the tree's canopy. (Refer to Table 1 of BS 5837:2012 'Trees in relation to design, demolition and construction Recommendations'). This area is called the Precautionary Zone or Root Protection Area. When it is established that no alternative options are available other than to construct within this zone, hand digging will be needed. When considering hand digging, an appointed arboricultural supervisor/consultant must be on site at the commencement of work.

2.2 Before beginning to dig, mark out the precautionary area with ground marker paint, clearly on the ground. This will identify the area within which hand digging must take place. For safety, ensure there are no underground services that may cause injury if damaged. Any existing protective fencing is to be located to the nearest position of construction and fixed in place, between the tree and area of construction. It will be clearly visible to operators thereafter where hand digging will need to be undertaken. The use of mechanical digging equipment to remove the top surface layer (50-100mm) is to be avoided and hand tools are required for this exercise too.

2.3 When hand digging using typical hand tools, carefully work around roots, retaining as many as possible. Using a brush will expose roots cleanly before deciding whether it will be necessary to prune. Care must be taken not to damage roots including the roots' bark.

2.4 Retain all roots with a diameter greater than 25mm. Where such roots must be removed, after consulting the arboriculturalist (e.g. Local Authority Tree Officer or the appointed Consultant), these roots must be pruned with sharp cutting tools such as a handsaw, secateurs or pruners. The cut must leave the smallest wound possible and the root must be left as long as practicably possible. All roots in excess of 50mm diameter are to be retained and protected by surrounding the root with un-compacted sharp sand, void-formers or other compressible materials.

2.5 Where it is obvious that roots do not exist e.g. beyond the extent or depth of the rooting area, mechanical excavation should only be considered with specialist arboricultural supervision.

2.6 All spoil is to be deposited beyond the precautionary zone. Soil build-up can cause root damage and die back.

2.7 As soon as practicable, exposed roots are to be covered with loose backfill material such as soil/sand mix to offer immediate protection. When excavating for the introduction of posts, pads or piles, the sides of the pits should be lined with a geotextile material to prevent the potential for lime scorching of small diameter roots.

2.8 Where it is not possible to complete the construction in one day, any exposed roots or their cut ends are to be covered with damp sacking material to prevent drying out and to add protection. This is particularly important in winter months, where frost can cause further damage to roots.

2.9 Upon completion of the hand digging, protection fences are to be re-located and fixed in their original position.

Also see the National Joint Utilities Group publication V4 2007 'Guidelines for planning installation and maintenance of utility services in proximity to trees'. In addition Table 2 from BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

**Before considering hand digging within the precautionary zones or root protection areas, specialist arboricultural advice must be sought.**

on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

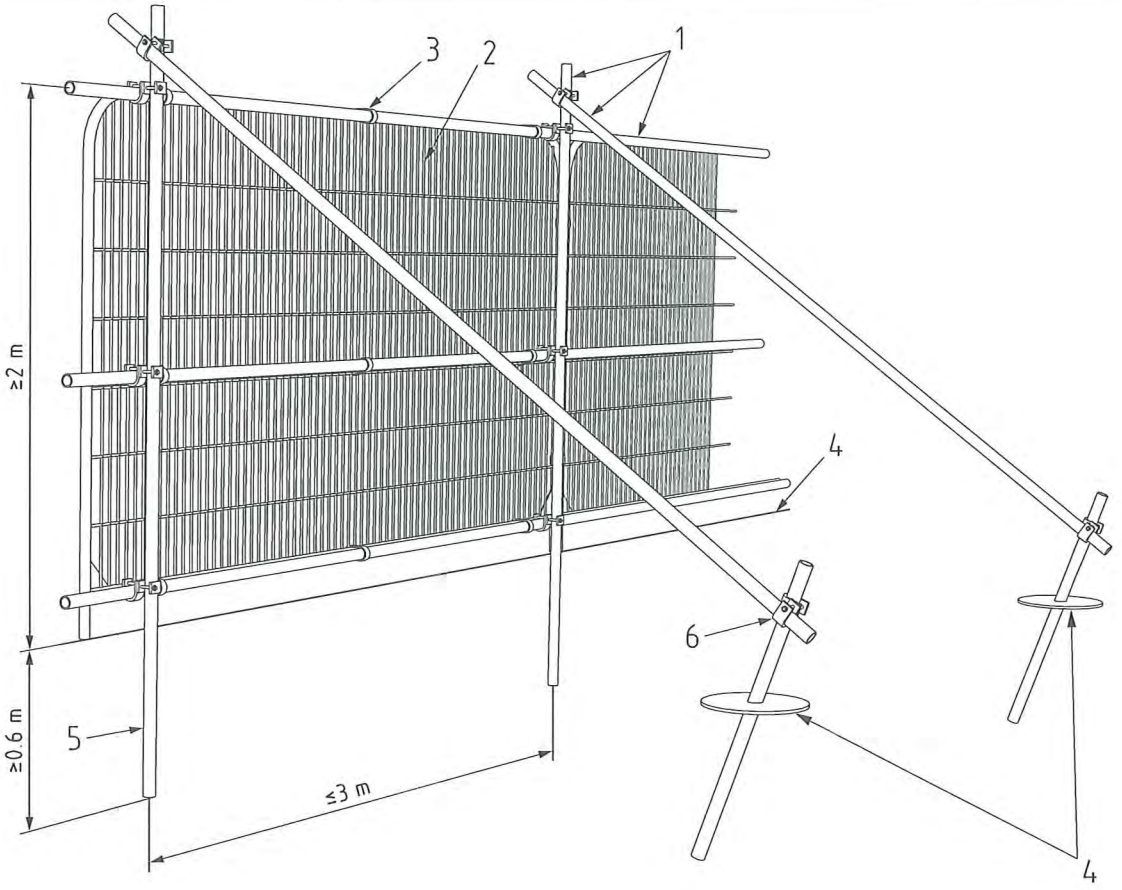
*NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.*

*NOTE 2 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 damaging the retained trees or their rooting environment.*

**6.2.2.4** All-weather notices should be attached to the barrier with words such as:

"CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Figure 2 **Default specification for protective barrier**




**Key**

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

# Method Statement - Protective Barrier / Fencing Specification and Establishing the Construction Exclusion Zone.

## 1.0 Introduction

1.1 This specification has been produced in line with the guidance provided within the British Standard 5837: 2012 Trees in relation to construction – Recommendations. (See attached detail of Protective barrier / fencing).

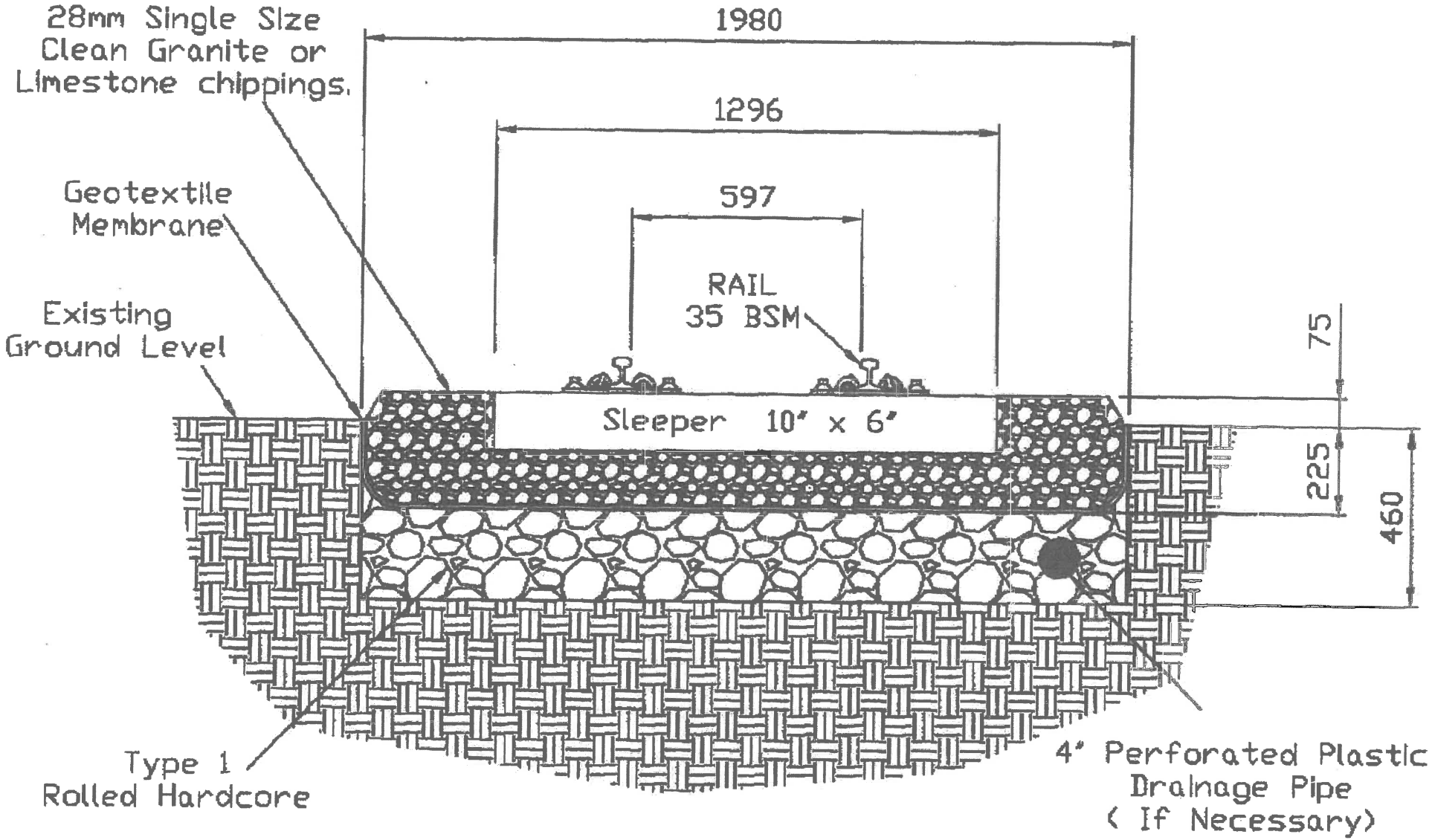
1.2 All trees which are being retained on site must be protected by a stout barrier / fencing, enclosing an area as illustrated on the Tree Protection Plan. The barrier shall be erected on or just outside the line indicated on plan. (This is normally shown as a dashed and dotted line). To ensure that the protective barrier is installed in the correct location, the line of the barrier must be marked out by the site foreman and then agreed with the Project Arboriculturalist. This may be done using either an appropriate 'high visibility' ground marking spray, or wooden pegs to denote the line.

1.3 The protective barrier / fencing must be erected before any materials or machinery are brought onto the site and before any demolition or construction work, including the erection of site huts, begins.

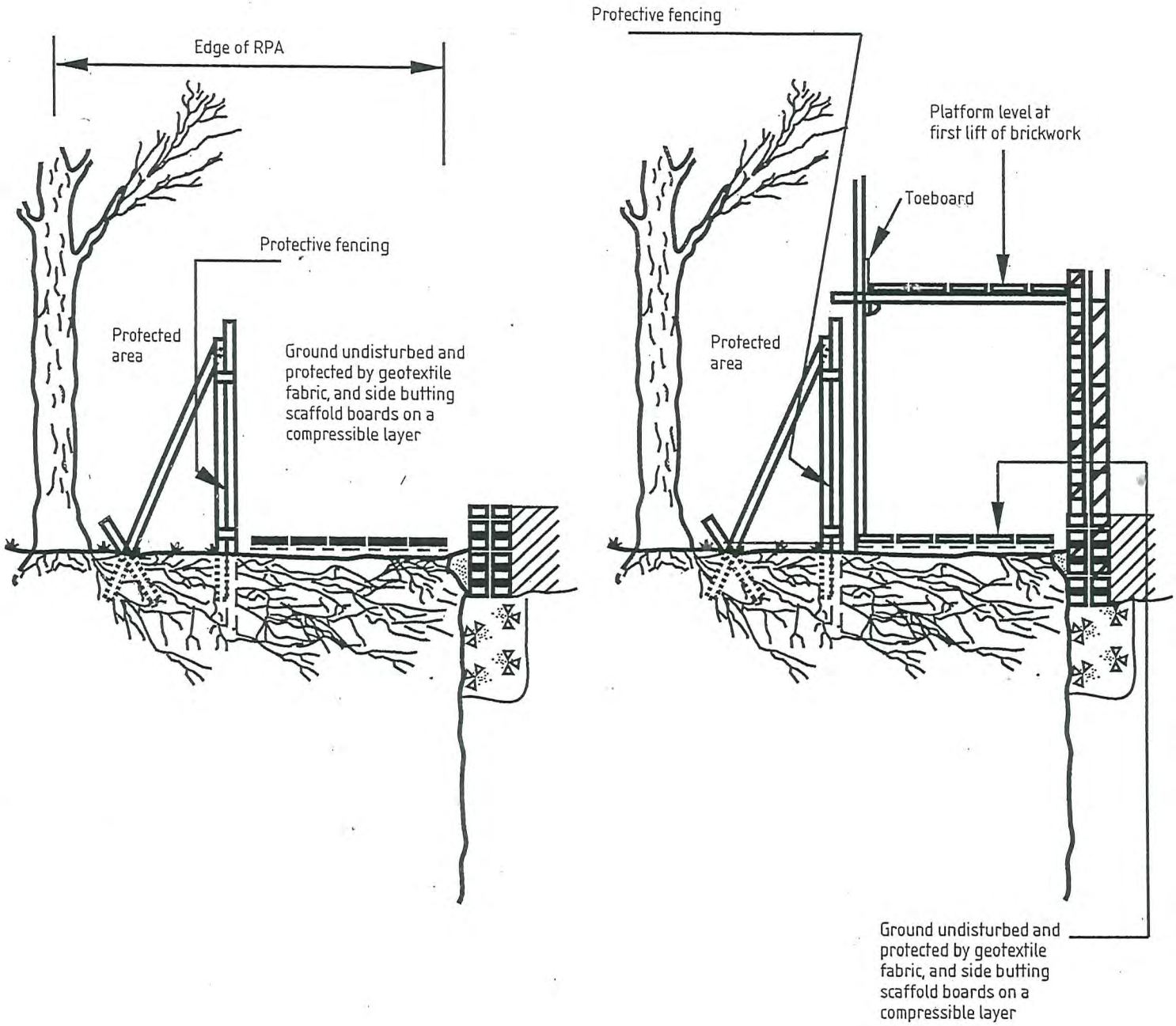
1.4 The area around the tree, enclosed by the protective barrier must be treated as a **Construction Exclusion Zone**. No access must be allowed to this area and no materials can be stored within this area. If access is essential for any purpose, approval must be gained from the Project Arboriculturalist. If repeated access is required for working purposes, such as the erection of scaffolding, then the ground surface must be protected.

1.5 Once erected, the barrier must be regarded as sacrosanct and must not be removed or altered without prior consultation with the Project Arboriculturalist. Signs must be secured to the fencing where they can be clearly seen and easily read by all site operatives, approaching from all angles. (See detail of standard signage for the Tree Protection Area).

1.6 In accordance with the BS 5837 the protective barrier must be at least 2.3m high with a vertical and horizontal framework of scaffolding, well braced to resist impact, with vertical tubes spaced at a maximum interval of 3.0m. (See attached detail for Protective barrier / fencing). Onto this framework, weld mesh panels will be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet ('Heras' or similar) are not resistant to impact unless they are securely braced into the ground. If for any reason the vertical and bracing poles are driven into the ground within the RPA, the operative must feel for any resistance in the ground and halt the driving operation to avoid causing damage to tree roots.

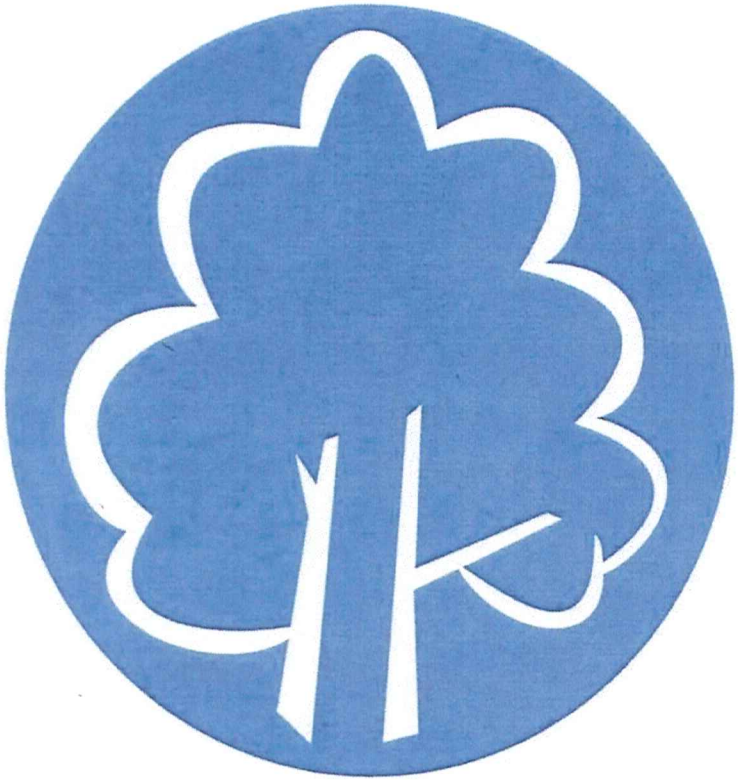



| ISSUE | DATE | REVISION | ALL TOLERANCES TO SPEC GT1 UNLESS OTHERWISE STATED | SCALE | 1:10 | Alan Keef Ltd | Track Details | DRAWING No. |
|---|---|---|---|---|---|---|---|---|
| 1 | 18/12/02 | | | CHECKED | | | Adrian Shooter | P5011 |
| | | | | DRAWN | J.A.P. | | | |




**Scaffolding within the RPA**

Example of Tree Protection Sign.



**PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.**

**TREE PROTECTION AREA**

**KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)**
**TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.**
**CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY**

## Tree Glossary

**Adventitious:** Describing shoots, roots or other plant organs which develop other than in their normal position of origin (i.e. terminal / axillary buds).

**Arboriculture:** The cultivation of trees in order to produce individual specimens of the greatest ornament, for shelter, or any other primary purpose other than the production of timber.

**Canopy:** The uppermost layer of twigs or foliage in a woodland, tree or group of trees.

**Chlorotic:** Chlorosis is an atypical colouring, usually yellowish, of foliage; often symptom of mineral nutrient imbalance or inadequate root function.

**Crown:** The spreading branches and the foliage of the tree supported by trunk (s).

**Crown Cleaning :** The removal of dead, dying, crossing, diseased branches.

**Crown Lifting:** The removal of lower limbs, generally back to the main stem or pruning lower secondary branches to give more clear space below the crown.

**Crown Reduction:** The tree crown is reduced by shortening branches, usually carried out all round the crown or canopy to maintain a balanced shape. Partial reductions may be useful for preventing branches contacting buildings, roofs and guttering.

**Crown Thinning:** This reduces the density of the tree's crown without changing the shape and form of the tree. Thinning reduces the amount of foliage and allows more light through the canopy or crown. The amount is usually specified as a percentage (%) of the crown.

**Dead Wood:** In some situations dead wood can pose a hazard as it can fall from the tree. However it also provides a range of habitats both when aerial and when on the ground.

**Dieback:** The death of a part of a tree, usually starting from the branch tips and progressing in stages.

**Epicormics:** Pertaining to shoots or roots which are initiated on mature woody stems; shoots may form in this way from dormant buds or they may be adventitious.

**Included Bark:** Bark of adjacent parts of the tree (usually in forks, acutely angled forked or basal flutes) which is a face-to-face contact, so that there is a weakness due to the lack of a woody union.

**Occlusion:** The overgrowth of a wound with (callus) tissue which is produced subsequently.

**Pollard:** A tree cut once or repeatedly at a height above which grazing animals can reach the regenerating growth. Usually cut on a semi-regular basis with the whole or part of the crown removed.

**Reaction Wood:** Usually laid down in wider annual increments than ordinary wood. Formed to help maintain the angle of a bent or leaning part of a tree by resisting the further bending downwards.

| | |
|---|---|
| **Soil Compaction:** | Soil compaction restricts the growth of trees, damages roots and reduces infiltration of water into the soil which over prolonged periods of time will be detrimental to tree health. |
| **Stress:** | In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range. |
| **Vitality:** | In tree assessment, an overall appraisal of physiological and biochemical processes, in which high vitality equates with healthy function. |
| **Wound Wood:** | Wood formed in the vicinity of a wound. Can also be used to describe the occluding tissue around a wound. |

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