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Arboricultural Impact Assessment

- Tree Survey
- Tree Protection Plan
- Preliminary Arboricultural
Method Statement

At:-

The Mallinson Sports Centre
Bishopswood Road
Highgate
London
N6 4NY

On behalf of:-

Highgate School
North Road
London
N6 4AY

Prepared by:

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1 BACKGROUND

- 1.1** This Arboricultural Impact Assessment has been instructed by Highgate School to assess the arboricultural impact of the proposed renovation and extension of the Mallinson Sports Centre at Bishopswood Road, Highgate.
- 1.2** Trees were surveyed, with findings shown in the Tree Schedule in Appendix B and shown plotted on the Tree Protection Plan in Appendix A. This also includes tree protection measures, which are specified in the Preliminary Arboricultural Method Statement in section 5 below. The arboricultural impact is assessed in section 6, which assumes that these recommendations are followed.
- 1.3** The Arboricultural Method Statement is only preliminary at this stage. Once planning permission has been granted, a detailed Arboricultural Method Statement will be prepared before work on site starts to include details of drainage, services and contractor's facilities with section drawings through No-Dig areas demonstrating existing and proposed levels.
- 1.4** The tree survey was initially undertaken, and this report has been prepared, by Simon Stephens MA Oxon, Dip Arb (RFS), MArborA, C Env, MICFor a Registered Consultant with the Arboricultural Association, with over 20 years relevant experience. Since the initial tree survey was undertaken, it has been updated by Highgate School Head Gardener, Fred Dukes.

1.5 This survey and report have been prepared in accordance with recommendations provided in BS 5837:2012, Trees in relation to design, demolition and construction - Recommendations.

1.6 Documentation supplied:

- Topographical Survey
- SJ Stephens Associates, Tree Constraints Report, dated 19-09-2018
- Proposed Site Plan: drawing no 1182-GL-012 Issue 19-05-2022
- Robert Myers Associates: Landscape Masterplan, drawing no 733 01(MP)001 rev I1

2 SURVEY DETAILS AND SCOPE

2.1 The site survey included trees and shrubs, within influencing distance of the proposed development, with a stem diameter over 75mm at 1.5m height, located within the area shown on the Tree Protection Plan, included as Appendix A.

2.2 Tree inspection took place from ground level with the use of binoculars, sounding hammer and metal probe using the Visual Tree Assessment method (Mattheck & Breloer 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies and any structural defects that could increase the risk of structural failure were noted.

2.3 Tree diameters were measured using a girthing tape and tree heights were measured using a hypsometer. Where use of a tape was restricted by site factors, diameters were estimated, with the diameter recorded in the tree schedule as eg "est 300".

2.4 At the time of the surveys, the weather was fine, with no restrictions to visibility. Broadleaf trees were in leaf. There were no limitations to access around the trees.

2.5 The suitability of trees for inclusion in the future development was considered, in particular considering the safe useful life expectancy, and sustainability, of trees on the site after development is completed.

2.6 Tree details have been added to the plan received, which is included as Appendix A. Tree locations have been taken from the topographical survey provided. Where not included on the topographical survey, they have been determined by measuring distances from features shown on the plan, using a laser measuring device. The following information was recorded for each tree, and is shown in the Tree Schedule included as Appendix B:

- **Number:** an identity number for each tree, prefixed with a "T", which cross references locations shown on the plan with the schedule in Appendix B. Where a number of trees, normally of the same species, are located close together and

are similar in character and requirements, they have been treated as a Group under a single Number, prefixed with a "G".

- **Species:** common name.
- **Tree height:** approximate height in metres.
- **Stem diameter:** diameter in millimetres, taken at 1.5m above ground. Where there are a number of stems, stem diameters are recorded in the condition column.
- **Branch spread:** approximate spread in metres to N,S,E and W of the trunk. The approximate branch spread is drawn on the plan.
- **Canopy clearance:** approximate height of the canopy above ground. Where a significant, low lateral branch is present, its height and direction of growth is included in the Condition column.
- **Age class:** Young, Semi-mature, Early mature, Mature, Over-mature, Veteran.
- **Condition:** features that affect the safe useful life expectancy and amenity of the tree, including the presence of decay or any physical defect.
- **Management Recommendations:** recommendations to ensure the health and safety of the tree, within the future development.
- **Estimated Remaining Contribution:** <10 years, 5-15 years, 10-20 years, 15-30 years, 20-40 years, >40 years.
- **Category grading:** tree classification taken from BS 5837:2012, Trees in relation to design, demolition and construction (see Appendix C for details), as follows:
 - Category U: Unsuitable for retention, trees with less than 10 years life expectancy, normally recommended for removal (Red)
 - Category A: high quality trees, able to make a substantial contribution for at least 40 years, normally retained unless there is an over-riding reason for removal and appropriate mitigation. (Green)
 - Category B: moderate quality trees, able to make a significant contribution for at least 20 years, normally retained. (Blue)
 - Category B/C: an intermediate category between categories B and C (not specifically described in BS5837). Trees, which should be retained wherever possible, providing retention does not unreasonably constrain the layout. (Blue)
 - Category C: low quality, in adequate condition to remain for at least 10 years, or young trees <150mm stem diameter. Trees which can be removed to allow the desired layout or new planting. (Grey)

For category A, B and C trees, a subcategory has been allocated, providing information on the reasons for selection of a specific category, as follows:

- Subcategory 1: mainly arboricultural values.
- Subcategory 2: mainly landscape values.
- Subcategory 3: mainly cultural values, including conservation.
- Trees have been classified irrespective of the possible proximity to future construction. The BS 5837 category is colour coded, as indicated above, on the plan included as Appendix A.

- **Protection Distance:** the protection distance in metres required to provide the Root Protection Area recommended in BS 5837, assuming a circular area centred on the tree.
- **Root Protection Area (RPA):** the area in m², as recommended in BS 5837, to provide sufficient rooting area to ensure tree survival and which, in most situations, should be fenced off to prevent root damage from construction activities.

3 SURVEY LIMITATIONS

- 3.1 No internal decay devices, or other invasive tools to assess tree condition, were used.
- 3.2 No soil excavation or root inspection was carried out.
- 3.3 This survey has not considered the effect that trees or vegetation may have on the structural integrity of future building through subsidence or heave.
- 3.4 The tree survey has been undertaken for planning purposes. Although any obvious structural defects have been noted, a Tree Hazard Assessment has not been carried out. Mature trees close to highly populated areas or public highways should normally be checked for safety annually, by a suitably qualified person.

4 LEGAL PROTECTION OF TREES

- 4.1.1 The Haringey District Council website shows that a number of Tree Preservation Orders affect the site, and it also falls within a Conservation Area. The presence of Planning Conditions currently attached to the site, was not checked.
- 4.1.2 Since the site is protected by Tree Preservation Orders and a Conservation Area, no tree surgery works must be undertaken without the approval of the Local Planning Authority.
- 4.1.3 Once planning permission has been granted, provided the application clearly shows any trees to be removed, this overrides protection provided by Tree Preservation Orders or Conservation Areas.

5 PRELIMINARY ARBORICULTURAL METHOD STATEMENT

5.1 Site Overview

- 5.1.1 The proposal is for the renovation, rebuilding and extension of the Mallinson Sports Centre, to be carried out over four separate phases. In addition to works to the sports centre, a “basin” will be created to the east of the sports centre to retain flood water in exceptional conditions.
- 5.1.2 The proposed site plan, along with tree details, is shown on the Tree Protection Plans included as appendices A and E.
- 5.1.3 There are a mixture of lime, sycamore and oak trees growing around the perimeter of the sports centre site. These are generally in reasonable condition and are providing high amenity value in the locality.
- 5.1.4 There is a small woodland to the east of The Orchard site, where the basin is proposed. Although this contains a small number of fine mature trees, the majority is low grade sycamore with birch and ash that has been unmanaged for many years.
- 5.1.5 The soil on the site is described as a freely draining, loamy soil by the National Soil Resources Institute (NSRI) at Cranfield University. (www.landis.org.uk)

5.2 Tree Work

- 5.2.1 Details of proposed tree works are included in the Tree Schedule included as Appendix B and the implication assessed in section 6.1 below.
- 5.2.2 Tree works can be completed before Tree Protection Fencing is erected, however no contractors plant or vehicles must be allowed to track within the Root Protection Areas unless ground protection panels are laid.
- 5.2.3 All tree work must be undertaken to the standards set out in BS 3998:2010 Tree work – Recommendations.

5.3 Root Protection Areas

- 5.3.1 Root Protection Areas are shown for all trees in the tree schedule attached as Appendix B. They are also shown for all retained trees, as circular areas centred on the trunk, on the Tree Protection Plan attached as Appendix A. This shows the distance from a tree in which all construction activity must normally be excluded, to provide the Root Protection Area as per BS 5837, unless appropriate protection measures are implemented.
- 5.3.2 For tree number T5, T14 and T37-T43, where the road within the Root Protection Areas will have inhibited root growth, the Root Protection Areas have been offset by 20%, away from the road, to more closely reflect the likely actual root spread

5.4 Tree Protection Fencing

- 5.4.1 Tree Protection Fencing must be erected where shown on the Tree Protection Plan, attached as Appendix A. This will provide full protection of the Root Protection Areas of all retained trees, other than for:
- areas hatched in blue on the Tree Protection Plan, where No-Dig Construction must be used, as described in section 5.5 below, to protect underlying roots.
 - areas hatched cyan on the Tree Protection Plan, indicating Ground Protection Areas, where roots must be protected, as described in section 5.6 below.
 - areas cross hatched red on the Tree Protection Plan, where there will be excavation required at the edge of Root Protection Areas, but where hand excavation must be used, as described in section 5.7, to minimise potential root damage.
- 5.4.2 Tree works can be completed before Tree Protection Fencing is erected, however no contractors plant or vehicles must be allowed to track within the Root Protection Areas unless ground protection panels are laid.
- 5.4.3 Around the sports centre site, Tree Protection Fencing must be from weldmesh panels, at least 2m high, securely fixed, with wire or scaffold clamps, to a rigid framework. This framework must be constructed from scaffold tubes with vertical tubes, at a maximum interval of 3m and driven into the ground at least 0.6m. The structure must be well braced to resist impacts, constructed as per Figure 2 of BS5837:2012, which is reproduced in Appendix D.
- 5.4.4 Around The Orchard site, weldmesh panels can be supported on blocks, providing the blocks are pinned to the ground with road pins, or similar, and the panels are braced, as per Figure 3 of BS5837:2012, which is also reproduced in Appendix D.

- 5.4.5 Where alternative locations for Tree Protection Fencing are shown, it must initially be erected where indicated "C" on the Tree Protection Plan while construction work is undertaken, then moved to where indicated "L", to allow landscape work to be completed.
- 5.4.6 After erection of Tree Protection Fencing and installation of ground protection, 2 days notice must be given to the Local Planning Authority before demolition or construction, including any ground work, starts on site. Tree Protection Fencing must be maintained and retained for the duration of the works, or until such time as agreed in writing with the Local Planning Authority.
- 5.4.7 Weatherproof notices must be fixed to the Tree Protection Fencing, and maintained, stating:-

**TREE PROTECTION AREA
KEEP OUT**

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS
AND TREE PRESERVATION ORDER/ CONSERVATION AREA STATUS
CONTRAVENTION MAY LEAD TO CRIMINAL PROSECUTION
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:

- The Protection Fence must not be moved
- No person or machine must enter the area
- No materials or spoil must be deposited
- No excavation must be permitted

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

5.5 No-Dig Construction Areas

- 5.5.1 The No-Dig areas, shown hatched blue on the Tree Protection Plan included as Appendix A, must be constructed without excavation apart from the removal of turf/organic matter, which must be carried out by hand. Excavators, dumpers and other site traffic must not be allowed to track on the No-Dig areas until roots are protected by the No-Dig surfacing or ground protection.
- 5.5.2 The No-Dig Construction Areas comprise areas within Root Protection Areas where:-
- new hard surfacing is to be installed
 - new light weight structures will be built, ie. the bike shed to the north of the sports centre.
 - the new building will be built out over the existing slope and supported on piles, to protect the roots of T1, T2 and T3.

- 5.5.3 Where new hard surfacing is proposed within the No-Dig areas, engineering details for the new build must avoid localised compaction, using both a two dimensional geogrid, and a three dimensional cellular confinement system as integral components of the sub-base. A typical section is shown on the Tree Protection Plan. As well as being fit for purpose, the design and methodology must protect tree roots, by ensuring the following:-
- topsoil/turf can be removed carefully by hand to a maximum of 75mm, but less if roots are found nearer the surface.
 - following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
 - a suitable two dimensional geogrid, such the TriAx Geogrid supplied by Tensar International (www.tensar.co.uk), or the Biaxial Geogrid supplied by Geosynthetics Ltd (www.geosyn.co.uk), must be laid over the entire area and underneath the edging.
 - pressure treated timber edging boards, supported by driven stakes must be used.
 - a suitable cellular confinement system must then be laid to manufacturers instructions on top of the geogrid. Products that might be considered include Geoweb, supplied by Greenfix (www.greenfix.co.uk) or Cellweb, supplied by Geosynthetics Ltd (www.geosyn.co.uk). The depth of the system must be adequate to take the maximum axle weight, as per manufacturers guidance.
 - the cellular confinement system must be filled with clean (no fines), washed angular, 4/20mm or 20/40mm, stone to provide load support, while allowing air and moisture to permeate to the root zone.
 - a further permeable, non-woven geotextile membrane, such as TreetexT300, or an alternative approved product which has similar oil trapping qualities, must be laid over the cellular confinement system.
 - a porous, surfacing material, free from contaminants, must then be laid. Either sand bedding and block paving, gravel or permeable tarmac would be suitable.
 - removed turf/topsoil can be used to grade surrounding ground levels.
- 5.5.4 The proposed light weight structures, which fall within the Root Protection Areas, must be built on a concrete slab, constructed on top of existing levels without excavation. Engineering details must include a cellular confinement system filled with clean stone, which will prevent soil compaction and allow gaseous diffusion to and from underlying roots. A typical section is shown on the Tree Protection Plan. As well as being fit for purpose, the design and methodology must protect tree roots, by following the following construction methodology:-
- Where there is existing hard surfacing, an excavator must only be used if it can work only from areas of hardstanding, or from outside the Root Protection Area. A banksman must be present during this operation and excavation must cease immediately if roots are found.
 - topsoil/turf can be removed carefully by hand to a maximum of 75mm, but less if roots are found nearer the surface.
 - following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
 - pressure treated timber edging boards, supported by driven stakes must be used.

- a suitable cellular confinement system must then be laid to manufacturers instructions. Products that might be considered include Geoweb, supplied by Greenfix (www.greenfix.co.uk) or Cellweb, supplied by Geosynthetics Ltd (www.geosyn.co.uk).
- the cellular confinement system must be filled with clean (no fines), washed angular, 4/20mm or 20/40mm, stone to provide load support, while allowing air and moisture to permeate to the root zone. The depth of the cellular confinement system must be confirmed with the suppliers as being adequate to protect the ground during pile driving operations.
- a further non-permeable, geotextile membrane, or heavy-duty polythene must then be laid before the reinforced concrete base is laid.
- removed turf/topsoil can be used to grade surrounding ground levels.

5.5.5 Where the new building will be built out over the existing slope and supported on piles, at the edge of the Root Protection Area of T1, T2 and T3, the ground must be protected, as detailed in section 5.5.6 below. Trial holes must then be dug at pile locations and locations shifted, if necessary, if any roots over 25mm in diameter, are encountered. Following pile driving, the reinforced concrete slab must be laid on a degradable void former, which will produce a void under the completed slab to allow gaseous exchange. Full details must be agreed with the contractor and included in the detailed Arboricultural Method Statement submitted for approval by the Local Planning Authority before work on site starts.

5.5.6 Site traffic, including pedestrians, must not be allowed on the No-Dig areas until roots are protected by the No-Dig surfacing, or unless suitable ground protection has been laid. If access is required across No-Dig areas for plant, before the No-Dig surfacing is laid, ground protection panels must be laid. Either Trakmats (supplied by the Marwood Group, www.marwoodgroup.co.uk), Groundtrax panels (see www.groundtrax.com), Ground-Guards, as supplied by Greentek (www.greentek.org.uk), or a similar approved product, must be used, laid on top of a compressible layer of sand or woodchips, laid onto a geotextile. If access is only required for pedestrians, 25mm plywood or side butting scaffold boards can be laid, on top of a compressible layer of sand or woodchips, laid onto a geotextile.

5.5.7 No-Dig construction will result in an increase in levels. This must be fully taken account of in all other aspects of the design.

5.6 Ground Protection Areas

5.6.1 Adjacent to the new buildings, where pedestrian movement and erection of scaffolding will take place within the Root Protection Areas of trees, Ground Protection Areas are shown on the plan. Trakmats, as supplied by either the Marwood Group, (www.marwoodgroup.co.uk) or Ground-Guards, (www.ground-guards.co.uk) or a similar approved product, must be used, laid on a compressible layer of sand or woodchips, laid onto a geotextile, with adjacent panels held together with connectors.

- 5.6.2 The location of the construction access to the basin is shown on the Tree Protection Plan, where the ditch will need to be culverted. A cross section for the surfacing for this temporary access is shown on the Tree Protection Plan in appendix E. As well as being fit for purpose, the design and methodology must protect tree roots, by following the following construction methodology:-
- following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
 - pressure treated timber edging boards, supported by driven stakes must be used.
 - a suitable cellular confinement system must then be laid to manufacturers instructions. Products that might be considered include Geoweb, supplied by Greenfix (www.greenfix.co.uk) or Cellweb, supplied by Geosynthetics Ltd (www.geosyn.co.uk).
 - the cellular confinement system must be filled with clean (no fines), washed angular, 4/20mm or 20/40mm, stone to provide load support, while allowing air and moisture to permeate to the root zone. The depth of the cellular confinement system must be confirmed with the suppliers as being adequate.
 - levels over the culvert can be made up, if required, by laying additional clean stone, or by additional layers of the cellular confinement system filled with stone.
- 5.6.3 A cut and fill operation will be carried out to form the basin. Part of the fill area will be within the Root Protection Area of retained trees. Contractors plant must not be allowed to track in these areas – shown cross hatched cyan on the Tree Protection Plan - unless suitable ground protection tracking is laid. Either trackpanel, as supplied by Eve Trakway (www.livetrakway.com), Tufftrak, as supplied by The Grassform Group (www.grassform.co.uk) or a similar approved product, must be used, laid on a compressible layer of sand or woodchips, laid onto a geotextile, with adjacent panels held together with connectors.

5.7 Hand Dig Areas

- 5.7.1 The Hand Dig trenches, shown cross-hatched red on the Tree Protection Plan for the basin, must be dug to formation level /a depth of 1m by hand, neatly severing any roots found, using secateurs or a hand saw. Any further excavation required, either to a greater depth or outside the hand dug trenches, can be carried out with an excavator, since it is unlikely that significant live roots will be found.
- 5.7.2 On no account must use of an excavator be used in the Hand Dig areas, which would rip roots and cause unnecessary damage.

5.8 General measures

- 5.8.1 No construction activity whatsoever, including routing of underground services, storage of materials or on-site parking, must be allowed within Root Protection Areas, other than that specifically described above.
- 5.8.2 No mixing or storage of cement, concrete, oil, fuel, bitumen or other chemicals must be permitted within 10m of the trunk of any retained trees, nor in any position where the slope of the ground could lead to contamination of the Root Protection Area.
- 5.8.3 Fires must not be lit in a position where their flames could extend to within 10m of foliage, branches or trunk.
- 5.8.4 Landscape works carried out within Root Protection Areas must be undertaken with great care so as not to damage shallow roots. Tractor mounted rotovators or other heavy mechanical cultivation must not be used within the Root Protection Areas.
- 5.8.5 If any retained tree is removed, uprooted, destroyed or dies, another tree shall be planted at the same place, at a size and species and planted at such time, that must be agreed in writing with the Local Planning Authority.
- 5.8.6 A copy of this report and the Tree Protection Plan must be kept on site and must be fully understood by the Site Agent.

5.9 Bat roosts

- 5.9.1 The current legislation makes it a criminal offence to disturb, damage or destroy any bat roost or hibernation area. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found.

5.10 Birds

- 5.10.1 The current legislation makes it a criminal offence to disturb nesting birds. The nesting season is generally assumed to be from 1st March to 31st July, however this can vary depending on species and location. During these months a careful inspection must be made before work commences and works must be postponed if active nests are found.

5.11 Woodland Management

- 5.11.1 The woodland to the east of The Orchard site contains some spectacular individual trees along its eastern and southern boundaries, however the central section is in poor condition. Part of the area has been used in the past as a dumping/burning site and the remainder is mostly low grade sycamore with birch and ash at close spacing. After being unmanaged for many years, this project provides an opportunity to bring it back into management.
- 5.11.2 Approximately 30% of the poorer quality trees will be paint marked for removal to favour better quality trees and to open up areas for new planting. The Tree Officer will be invited to approve the thinning after it is marked, but before felling starts. Native shrubs will be retained but areas of bramble and nettle will be cleared. Smaller diameter material will be chipped with larger deadwood left for deadwood habitat.
- 5.11.3 All open areas will then be planted with a mixture of native broadleaf trees at 3m centres, including oak, sweet chestnut, field maple, hornbeam and small leaved lime. Trees will be interplanted with native shrubs, including hazel, spindle, dogwood, holly and viburnum in blocks of 3-7 of a species at 1m spacing.
- 5.11.4 A five year maintenance programme must be undertaken, with any failures being replaced each winter.

5.12 Arboricultural Supervision

- 5.12.1 A qualified Arboricultural Consultant must be retained during the period of construction to carry out the following:
- to prepare a detailed Arboricultural Method Statement, to include details of drainage, services, contractors facilities, method of operation for the Cut and Fill of the basin and a cross section through the No-Dig areas showing existing and proposed levels. The Arboricultural Method Statement must be approved by the Local Planning Authority, prior to construction or demolition starting on site.
 - to attend a pre-start meeting with the contractor, project manager and Tree Officer to ensure the Arboricultural Method Statement is fully understood and all elements will be complied with.
 - to paint mark trees for removal.
 - to inspect Tree Protection Fencing and ground protection, prior to each phase of works starting on site.
 - to attend site as the cut and fill of the basin starts to ensure the agreed method of work is being followed.

- as necessary, to advise on any issues at the request of the local planning authority, the developer, architect or contractor.

The details of each site visit must be recorded using a site visit proforma, with copies circulated to the contractor, developer and the local authority Tree Officer within 3 working days of the visit.

6 ARBORICULTURAL IMPACT ASSESSMENT

6.1 The following six trees, categorised as per BS 5837 (see Appendix C for details), are proposed for removal to carry out the 4 phases of the sports centre construction:

- Category C – low quality:
 - T13 – a 5m, leaning cherry that needs to be removed to allow the new access to be created.
- Category B/C – between categories B and C:
 - T7 – a 10m sycamore, which has previously been topped, has low amenity value and is best removed to allow new tree planting to be undertaken.
- Category B – moderate quality:
 - T33 – an 18m sycamore with four stems, that needs to be removed for construction access.
 - T34 – an 8m twin stem holly.
 - T45 – a 19m lime, showing good form and vigour despite some dieback at branch extremities.
- Category A-B – good quality:
 - T4 – a 22m lime, which has four main stems from 2-4m, with good crown shape despite some thinning of foliage.

6.2 The only trees of any landscape significance proposed for removal to carry out the sports centre works are T4 and T45. T4 and T45 are growing alongside Bishopswood Road adjacent to the new sports hall. The new sports hall must be the size proposed to meet various sports standards. It can not be constructed in any other location so for the project to proceed there is no option but to remove these trees. Although five trees will be removed, planting locations for many more new trees are shown on the proposed site plan.

6.3 The following 28 trees, categorized as per BS 5837 (see Appendix C for details), are proposed for removal to construction the new flood defence basin / sports amphitheatre:

- Category C – low quality: 9 trees
- Category B/C – between categories B and C: 14 trees
- Category B – moderate quality: 5 trees
 - T33 – an 18m four stemmed sycamore, which needs to be removed to allow construction access to create the basin. The access has been kept out of the Root Protection Area of the veteran oak, T36, and located in this position as, as can be seen in the photo in Appendix G, the canopies of adjacent trees

will soon fill the gap left by T33 and there will be little effect on the amenity value of this belt of trees.

- T154 and T175 – two 18m birch within the woodland
- T165 – an 8m yew
- T171- a 14.5m, twin stem sycamore

- 6.4** Although 28 trees will be removed, apart from T33, these are all tightly spaced woodland edge trees. In total they comprise approximately 390m², or 0.1 acres of woodland. Loss of this small area will allow a useable space to be created within the basin and will be mitigated by the new planting of 47 trees and woodland management plans for the remainder of the woodland.
- 6.5** Protection measures have been specified to protect the Root Protection Areas of retained trees.
- 6.6** Exploratory trenches were dug in January 2019 to determine the root spread of trees adjacent to the new sports hall with results used to determine the building layout. The location of these trenches is shown on the plan included as Appendix Fvii). The Tree Officer was kept informed of these works and invited to attend site.
- 6.7** Trenches in the south west corner showed that there is very little root growth under the existing netball court, but heavy root growth just outside. The north-west corner of the main building has therefore been kept within the netball court. The new bike sheds will be within the Root Protection Areas of T14 and T41-T43, however the finished floor level will be at approximately the same level as the existing tennis court, making a No-Dig construction method possible, as can be seen in the photo in Appendix G.
- 6.8** A trench was also dug along the north-east edge of the new hall location. This showed significant rooting at the southern end but negligible roots further to the north. The single storey “lean-to” building adjacent to T11 will therefore be constructed on an above ground concrete slab using a No-Dig methodology. Although the sports hall will be within the edge of the Root Protection Areas of T8 and T10, this area is mostly within the footprint of the existing building and where the exploratory trench has shown negligible rooting.
- 6.9** Provided the recommendations in this report are followed, the arboricultural impact of this development on tree cover in the area is considered acceptable, with new specimen and woodland tree planting mitigating for necessary tree removals. A detailed Arboricultural Method Statement will be prepared for approval prior to commencement on site and arboricultural supervision will be in place throughout the construction period.

7 REFERENCES

- *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.*
- *BS3998:2010 Tree Work. Recommendations.*
- *NJUG 10: Guidelines for the planning, installation and maintenance of Utility Services in proximity to trees. (Published by the National Joint Utilities Group) Issue 2:16th November 2007.*
- *Mattheck & Breloer (1994). HMSO London. Research of Amenity Trees No4: The Body Language of Trees.*
- *The use of Cellular Confinement systems near Trees: a guide to good practice Arboricultural Association Guidance Note 12.*

APPENDIX A

Key

- Category U
- Category A
- Category B
- Category C
- Crown spread: retained trees
- Trees For Removal
- Root Protection Area
- Tree Protection Fence
- location: landscaping
- location: construction
- No Dig Construction
- Ground Protection Area

Scale

0 5m 10m

CONSTRUCTION DETAIL FOR NEW HARD SURFACING IN NO-DIG AREA

CONSTRUCTION DETAIL FOR CONCRETE BASE FOR BUILDINGS IN NO-DIG AREAS

Notes:

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- See separate Tree Protection Plan for Orchard area
- Construction Access
- Building to be built out over existing slope and supported on piles
- New Tree Planting

SJ Stephens Associates
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JOB TITLE
MALLINDON SPORTS CENTRE
4-PHASE SCHEME

DRAWING TITLE
TREE PROTECTION PLAN

DRAWING NUMBER
380-13

REV
A

REVISIONS

SCALE
1:300atA1

DATE
MAY 22

DRAWN BY
SJS

APPENDIX A

Key

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- Category A
- Category B
- Category C
- Crown spread: retained trees
- Trees For Removal
- Root Protection Area
- Tree Protection Fence
- location: landscaping
- location: construction
- No Dig Construction
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Scale

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CONSTRUCTION DETAIL FOR NEW HARD SURFACING IN NO-DIG AREA

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Mallinson Sports Centre, Highgate School
**Appendix B
BS 5837: 2012 Tree Schedule**

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect- ion Distance (m)	Root Protect. Area (m2)
				N	S	E	W								
T1	Lime	23	760	5	6	7	7	3.5	Early mature	Good form, structure and vigour, despite minor deadwood at branch extremities.		>40	A2	9.1	261
T2	Lime	23	750	7	7	8	6	4.5	Early mature	Main stem bifurcates at 3m. Good crown shape and vigour. Canopy growing within 0.6m of building.		>40	A2	9.0	254
T3	Sycamore	19.5	est 650	7	5	4	7	3.5	Early mature	Main stem bifurcates at 1.9m. Reasonable vigour.		20-40	B2	7.8	191
T4	Sycamore	22	730	6	7	7	9	3.5	Early mature	Four main stems from 2-4m. Attractive crown shape, although some minor thinning of foliage.	Remove to facilitate development	>40	A-B2	8.8	241
T5	Lime	16.5	640	7	5	5	5	2.5	Mature	Crown previously reduced.		>40	A-B2	7.7	185
T6	Lime	17	620	3.5	3.5	3.5	3.5	3.5	Early mature	Branch removed at 2m to east- possible decay site. Bark damage to buttresses.		20-40	B2	7.4	174
T7	Sycamore	10	930	4.5	4.5	4.5	4.5	2.5	Mature	Previously topped. Vigorous re-growth. Main stem leans to south west.	Remove to facilitate development	15-30	B-C2	11.2	391
T8	Sycamore	17	830	6	6	6	6	4	Mature	Twin stem from 1m - 510 & 650mm. Recent crown reduction. Good crown shape		20-40	B2	10.0	311
T10	Oak	17	est 950	3	9	9	8	3.5	Mature	Major limb to west previously broken out at 3m. Previous crown reduction. Good vigour.		>40	A-B2	11.4	408
T11	Oak	10.5	700	6	3.5	7	1.5	2.5	Mature	Major cavity to main stem.		15-30	B2	8.4	222
T12	Sycamore	14.5	620	4	6	5	6	4.5	Mature	Previous crown reduction. Slight lean to south. Tight fork at 3m. Low branches recently pruned back from scaffolding.		20-40	B2	7.4	174
T13	Cherry	5	210	1.5	7	3	5	1.8	Early mature	Low quality tree - acute lean to south. Bifurcates at 0.5m.	Remove to create new access	10-20	C2	2.5	20
T14	Lime	23	730	8	4	6	4	3.5	Early mature	Tag 020. Main stem bifurcates at 6m - some included bark.		20-40	B2	8.8	241
T15	Oak	13.5	est 550	6.5	7	6.5	9	2.5	Early mature	Growing in adjacent property - base not inspected. Attractive tree. Canopy growing 1.5m from scaffolding.		>40	A-B2	6.6	137
T16	Sycamore	14	est 550	9	2	9	7	3	Early mature	Growing in adjacent property - base not inspected. Rampant ivy.		20-40	B2	6.6	137
T17	Sycamore	16.5	680	6	6	5	8	3.5	Early mature	Twin stem from base - 520 & 440mm - tight fork. Cable brace.		20-40	B2	8.2	209
T21	Sycamore	17	540	3	6.5	3	7	5	Early mature	Slight lean to west. Asymmetric crown. Canopy within 0.6m of roof.		20-40	B2	6.5	132
T22	Sycamore	16.5	510	4	5	8	3.5	4.5	Early mature	Twin stem from base - 310 & 410mm. Leaning to east.		15-30	B-C2	6.1	118
T23	Sycamore	16.5	380	1	3	9	0.5	5	Early mature	Leaning to east.		15-30	B-C2	4.6	65

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				N	S	E	W								
T24	Sycamore	14.5	410	1	7	8	3	3	Early mature	Slight lean to east.		20-40	B2	4.9	76
T25	Thorn	7	140	1	5	2	2.5	2	Early mature	Reasonable vigour.		10-20	C2	1.7	9
T26	Sycamore	16.5	500	8	5.5	2	6.5	6	Early mature	Good form and structure.		>40	A-B2	6.0	113
T27	Thorn	5	290	3	3	3	3	0.2	Early mature	Approx six stems from base - average 120mm. Providing some screening.		15-30	B-C2	3.5	38
T29	Oak	17	790	3	8	8	6	4	Early mature	Declining vigour. Deadwood recently removed.		15-30	B2	9.5	282
T30	Oak	19	710	6	9	12	9	3.5	Early mature	Minor deadwood. Ivy to mid canopy.		>40	A-B2	8.5	228
G31	Holly/Thorn	5 - 6	100 - 150					0.2	Early mature	Unmanaged, gappy hedge. Dense ivy.		15-30	B-C2	1.8	10
T32	Sycamore	19	790	9	8	9	8	3.5	Mature	Main stem bifurcates at 1.9m-some included bark, and again at 2m. Tightly branchds canopy. Ivy to mid crown.		20-40	B2	9.5	282
T33	Sycamore	18	750	2	7	8	9	3.5	Early mature	Four stems from base- 250, 320, 430, 460mm. Tight forks, but steeply ascending branches.	Remove for construction access	20-40	B2	9.0	254
T34	Holly	8	440	4	5	5	5	1.6	Mature	Main stem bifurcates at 1m- 260,350mm- tight fork. Good vigour.	Remove to construct path	20-40	B2	5.3	88
T34a	Sycamore	17	580	8.5	3	8	5	3	Early mature	Four stems at 1.5m- 220,260,300,360mm. Branches crossing and rubbing.		15-30	B2	7.0	152
T36	Oak	17.5	1400	7	10	8	9	2.2	Veteran	Fine feature tree. Slight lean to west. Showing good vigour. Occasional minor deadwood.		>40	A1-2-3	15.0	707
T37	Lime	17.5	480	7	3	3.5	7	2	Early mature	Major limb to south removed at 2.5m. Cavity in old branch wound at 2m.		15-30	B-C2	5.8	104
T38	Lime	24	740	6	8	8	9	3	Mature	Main stem bifurcates at 3m minor deadwood at branch extremities.		>40	A-B2	8.9	248
T39	Lime	22	650	5.5	6	9	6	2.5	Mature	Minor dieback at branch extremities, but good quality tree.		>40	A-B2	7.8	191
T40	Lime	19	550	4	4	4	5.5	2	Mature	Dead branch to east at 8m.	Remove major deadwood.	>40	A-B2	6.6	137
T41	Lime	19	550	4.5	4.5	4.5	4.5	2	Mature	Cavity beginning in branch wound at 2m to south.		15-30	B-C2	6.6	137
T42	Lime	19	530	4.5	5.5	6	5	2.5	Mature	Minor deadwood.		>40	A-B2	6.4	127
T43	Lime	23	790	6	7	8	5	3	Mature	Wide spreading tree.		>40	A-B2	9.5	282
T44	Sycamore	16.5	est 680	4	4	4	4	3	Mature	Growing in adjacent property- base not inspected. Becoming engulfed in ivy.		15-30	B-C2	8.2	209

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				N	S	E	W								
T45	Lime	19	600	4	4	4	4	2	Early mature	Showing good vigour, although minor dieback at branch extremities. Base not accessible.	Remove to facilitate development	20-40	B2	7.2	163
T132a	Sycamore	16.5	500	6	6.0	6	2.5	3	Early mature	Growing on edge of ditch. Reasonable vigour.		20-40	B2	6.0	113
T132b	Oak	16.5	880	9	7.5	8	4	2.5	Mature	Tag 58. Occasional dead branches, but conservation value.		>40	B3	10.6	350
T133	Sycamore	18	500	6	7	3	6	3.5	Early mature	Good form and structure.		>40	A-B2	6.0	113
T134	Oak	18	970	10	8	7	8	N2, S3.5, E3.5, W5	Mature	Tag 56. Fine tree, showing good vigour. Occasional dead branches.		>40	A2-3	11.6	425
T135	Thorn	5	180	2.5	6.5	4	4	1.7	Mature			15-30	B-C2	2.2	15
G136	Thorn	5-7	200					0.5	Mature	Stem diameter 100-200mm.		15-30	B-C2	2.4	18
G137	Hedgerow	3-6.5	200					0.2	Mature	Stem diameter 75-200mm. Dense hedgerow containing thorn, holly and hazel.		15-30	B-C2	2.4	18
T138	Sycamore	12.5	340	4	5	5	4	3.5	Early mature	Cavity at 1m.		15-30	B-C2	4.1	52
T139	Sycamore	13	340	2	5	4	4	1.8	Early mature	Main stem bifurcates at 2.3m- included bark.		15-30	B-C2	4.1	52
T140	Ash	16	430	5	5	13	0	4	Mature	Acute lean to east.		10-20	C2	5.2	84
T141	Sycamore	11	210	3	4	5	3	1.5	Early mature	Tag 1206. Leaning to east.		10-20	C2	2.5	20
T142	Ash	11	340	0	13.5	4.5	0	4.5	Early mature	Acute lean to south east.		10-20	C2	4.1	52
T144	Sycamore	15	210	1	1.5	3	1	2.5	Early mature	Drawn up.		10-20	C2	2.5	20
T146	Sycamore	16	330	2	4	4	1	5	Early mature	Dense ivy to upper crown.	Remove section of ivy from base.	15-30	B-C2	4.0	49
T147	Pear	13.5	650	3	7	7	4	2	Mature	Attractive tree. Dense ivy to mid crown.	Remove section of ivy from base.	15-30	B2	7.8	191
T148	Oak	9	440	0	10	4	5.5	2	Early mature	Acute lean to south west.		15-30	B-C2	5.3	88
T149	Sycamore	18	470	6	6	4	6	2.5	Early mature	Good potential.		>40	A2	5.6	100
T150	Sycamore	17.5	600	7	9	8	6	3	Mature			20-40	B2	7.2	163
T152	Sycamore	15	est 400	5	2	6	3	5	Early mature	Growing outside site- base not inspected. Dense ivy. Slight lean to north.		15-30	B-C2	4.8	72
T153	Sycamore	16	est 650	6.5	6.5	6.5	6.5	3.5	Mature	Growing just outside boundary fence. Twin stems.		20-40	B2	7.8	191

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				N	S	E	W								
T154	Birch	18	570	5	4	3	6	2	Mature	Attractive tree.	Remove to construct new amphitheatre	20-40	B2	6.8	147
T156	Sycamore	16.5	470	6	6	6	6	7	Early mature	Paint mark 1060. Twin stem from 2m. Included bark.		15-30	B-C2	5.6	100
T157	Leyland cypress	13	400	3	3	3	3	2.5	Early mature	Low amenity value.		20-40	B-C2	4.8	72
T158	Leyland cypress	13	400	3	3	3	3	2.5	Early mature	Low amenity value.		20-40	B-C2	4.8	72
T159	Oak	21	580	6	6	6	6	8	Early mature	Tag 767. Fine tree. 12.5m from boundary.		>40	A2	7.0	152
T160	Leyland cypress	13	400	3	3	3	3	2.5	Early mature	Low amenity value.		20-40	B-C2	4.8	72
T161	Leyland cypress	13	400	3	3	3	3	2.5	Early mature	Low amenity value.		20-40	B-C2	4.8	72
T162	Birch	18	380	3	3	3	3	9	Mature	Attractive tree.		20-40	B2	4.6	65
G163	Woodland	6-20	450					1	Early mature	Stem diameter 100-450mm. Some fine mature trees around eastern and southern edge, but majority of area with early mature sycamore, with some ash and birch. Few trees of particular individual merit, but as a group providing good amenity and conservation value. Understorey includes holly, blackthorn, hazel and thorn. Woodland edge to west contains mainly hazel, blackthorn and low quality small sycamore.	Thin out approx 30% of poorer quality trees to allow better ones to develop and to open up space for new planting .	20-40	B2	5.4	92
G164	Willow	4-9.5	150					0.4	Semi-mature	Stem diameter 30-150m. A group of young willow.	Remove to construct new amphitheatre	>40	C2	1.8	10
T165	Yew	8	320	3	3	2	3	0.5	Early mature	Twin stem from 0.5m- 180,270mm. Reasonable vigour can develop.	Remove to construct new amphitheatre	>40	B2	3.8	46
T166	Oak	9	300	3	3	0	7	1.7	Early mature	Tag 747. Leaning to west. Main stem doglegs.	Remove to construct new amphitheatre	15-30	B-C2	3.6	41
T167	Birch	17	350	4	4	5	2	8	Mature	Twin stem from base- 200,290mm. Western stem leaning to north.	Remove to construct new amphitheatre	15-30	B-C2	4.2	55
T168	Sycamore	14	350	4	5	5	3	2	Early mature	Twin stem from base-190,290mm. Asymmetric canopy. Dense ivy to mid crown.		15-30	B-C2	4.2	55
T169	Hazel	4.5	100	3	3	3	3	1.2	Mature	Approximately 15 stems from base- average 25mm.		15-30	B-C2	1.2	5
T170	Holly	4	100	2.5	2.5	2.5	2.5	0.5	Early mature	Stem diameter 75-100mm.		15-30	B-C2	1.2	5
T171	Sycamore	14.5	390	1.5	3	4	3	3.5		Twin stems-260,290mm. Asymmetric canopy, but reasonable vigour.	Remove to construct new amphitheatre	20-40	B2	4.7	69

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				N	S	E	W								
T172	Sycamore	15	480	4	4	4	4	9	Early mature	Twin stems from 1.6m-tight fork, with adaptive growth. Possible risk of breakout.		10-20	C2	5.8	104
T174	Oak	10	130	2	1	1	3	2.5	Semi- mature	Dead top.	Remove to construct new amphitheatre	5-15	C2	1.6	8
T175	Birch	17.5	430	3.5	3.5	3.5	3.5	8.5	Mature	Good form and structure.	Remove to construct new amphitheatre	20-40	B2	5.2	84
T176	Sycamore	15	240	3	3	2	3	4	Early mature	Good form and structure.		>40	B2	2.9	26
T177	Sycamore	15.5	310	1	6	4	4	4.5	Early mature	Five stems- average 140mm. Asymmetric canopy. Ivy.	Remove to construct new amphitheatre	15-30	B-C2	3.7	43
T178	Sycamore	15.5	330	1	5	0.5	2.5		Early mature	Three stems from base- 170,180,210mm. Drawn up. Ivy to mid crown.	Remove to construct new amphitheatre	15-30	B-C2	4.0	49
T179	Hazel	4	170	1	3	3	3	0.1	Mature	Approximately 8 stems- average 60mm, together with fresh growth. Dense ivy.	Remove to construct new amphitheatre	10-20	C2	2.0	13
T180	Hazel	4	150	1.5	4	2	2	0	Mature	Approximately 6 stems- average 60mm- breaking apart. Engulfed in ivy.	Remove to construct new amphitheatre	10-20	C2	1.8	10
T182	Sycamore	13.5	260	1	4.5	2.5	2.5	2.5	Early mature	Tight fork at 3.5m-.	Remove to construct new amphitheatre	15-30	B-C2	3.1	31
T182a	Hazel	3	140	1	3	2	2	0	Mature	Approximately 8 stems from base- average 50mm. Dead stem. Dense ivy.	Remove to construct new amphitheatre	15-30	B-C2	1.7	9
T183	Sycamore	7.5	110	0	3	1.5	1.5	4	Semi- mature	Leaning to south.	Remove to construct new amphitheatre	20-40	C2	1.3	5
T184	Yew	8	260	4	1.5	3.5	3	2	Early mature	Only moderate vigour.	Remove to construct new amphitheatre	15-30	B-C2	3.1	31
T185	Sycamore	15	240	1	4	2.5	2.5	8	Early mature	Paint mark 753. Drawn up.	Remove to construct new amphitheatre	15-30	B-C2	2.9	26
T186	Damson	7	140	2	2	5	0	1.6	Mature	Acute lean over path.		5-15	C2	1.7	9
T187	Damson	7	210	3	4	2.5	5	1.6	Mature	Three stems from base- average 120mm. Branch broken out. Engulfed in ivy.	Remove to construct new amphitheatre	5-15	C2	2.5	20
T188	Sycamore	11.5	210	0.5	4	2	2		Early mature	Drawn up. Leaning.	Remove to construct new amphitheatre	10-20	C2	2.5	20
T189	Damson	4	270	0.5	7.5	4.5	3	0.5	Mature	Major stem growing low to south. Poor structure.	Remove to construct new amphitheatre	15-30	B-C2	3.2	33
T190	Sycamore	9	150	1	2	0.5	2	3	Semi- mature	Leaning to north west.	Remove to construct new amphitheatre	10-20	C2	1.8	10
T191	Sycamore	13	220	2.5	2.5	2.5	2.5	8	Early mature	Paint mark 1014. Slight lean to north. Drawn up.	Remove to construct new amphitheatre	15-30	B-C2	2.6	22
T192	Sycamore	10.5	150	1	3	2.5	3	3	Early mature	Stem dog legs at base.	Remove to construct new amphitheatre	15-30	B-C2	1.8	10

Mallinson Sports Centre, Highgate School
**Appendix B
BS 5837: 2012 Tree Schedule**

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect- ion Distance (m)	Root Protect. Area (m2)
				N	S	E	W								
T193	Ash	15	510	3	5	3	7	3	Early mature	Six stems from base-average 210mm. Minor dieback throughout canopy. Dense ivy.	Remove to construct new amphitheatre	15-30	B-C2	6.1	118
T194	Birch	15.5	230	3.5	0	0.5	3	9	Mature	Drawn up. Leaning to north.	Remove to construct new amphitheatre	15-30	B-C2	2.8	24
T195	Ash	14	150	4	3	3	3	3.5	Early mature	Ivy to mid crown.		15-30	B-C2	1.8	10
T196	Thorn	3.5	190	1.5	1.5	1.5	1.5	1.5	Mature	Three stems from base- average 110mm. Only moderate vigour.		15-30	B-C2	2.3	16
T197	Yew	4.2	140	3	3	3	3	1	Semi- mature	Twin stems from 1m- both 100mm. Showing good vigour.		>40	B-C2	1.7	9
T198	Thorn	5.5	100	1	1.5	1.5	1.5	1.6	Early mature			15-30	B-C2	1.2	5
T199	Ash	12	230	5	5	4.5	2	2.5	Early mature	Minor deadwood.		15-30	B-C2	2.8	24
T200	Thorn	3.5	240	1.5	1.5	1.5	1.5	1.4	Mature	Engulfed in ivy, but still showing reasonable vigour.	Remove to construct new path and bund	15-30	B-C2	2.9	26
T201	Thorn	3	est 250	1.5	1.5	1.5	1.5		Mature	Engulfed in ivy. Little live growth.	Remove to construct new path and bund	10-20	C2	3.0	28

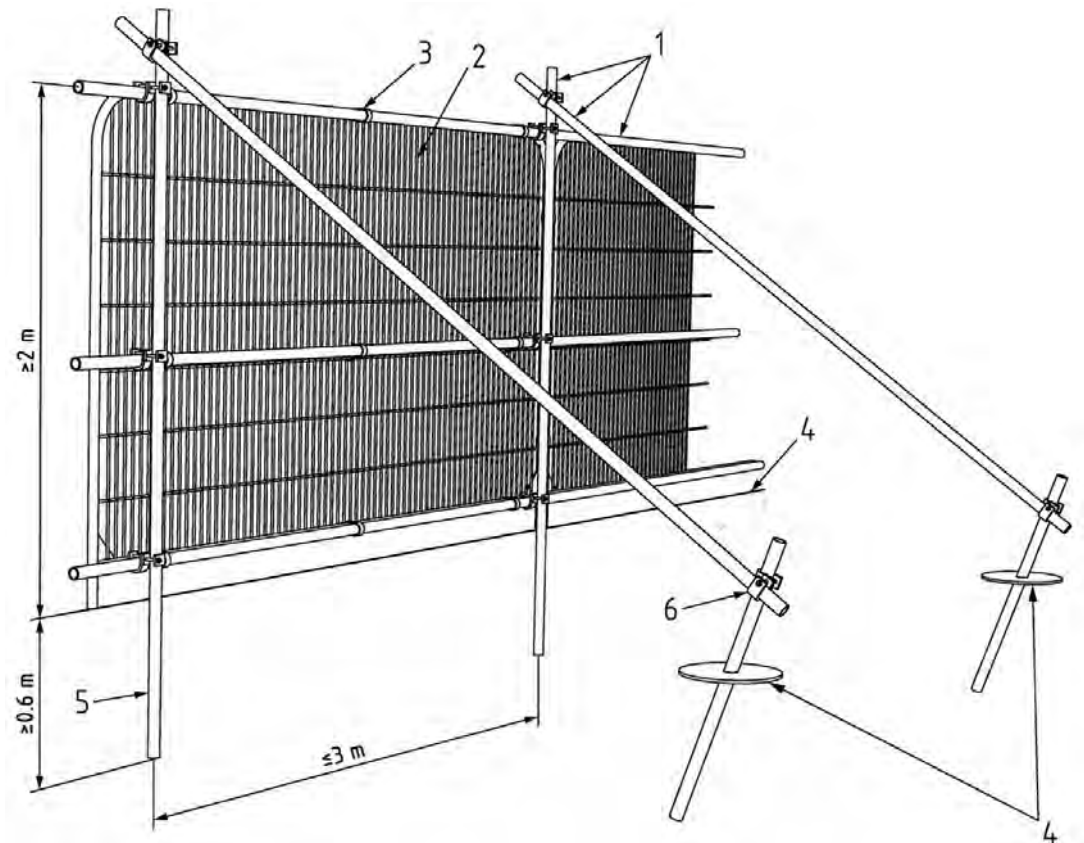
BS 5837:2012, Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U 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) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - 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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			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 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 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 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

Figure 2

Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m galvanised 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



Examples of above-ground stabilising systems

Figure 3a

Stabiliser strut with base plate secured with ground pins

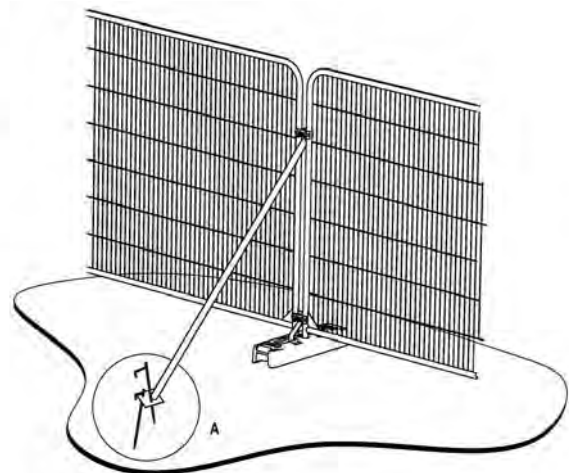
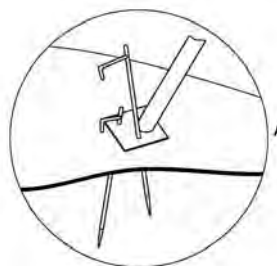
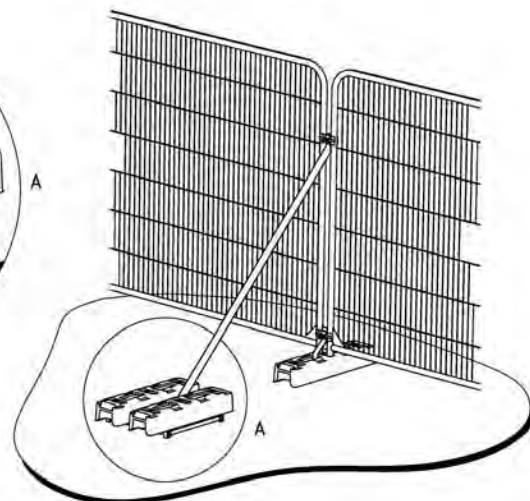
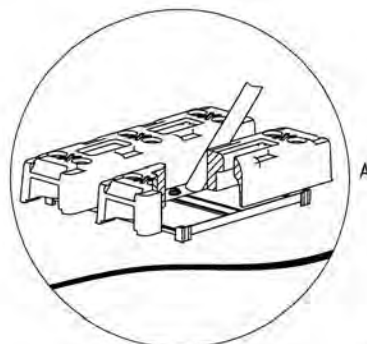


Figure 3b

Stabiliser strut mounted on block tray



Neglected woodland
to be brought back
into management.

Areas to be cut by up to 2.4m
(shaded grey)

Areas of up to 1.4m fill
(shaded light green)

Hand Dig
Area

Proposed contours

Hand Dig
Area

Construction
Access

Key

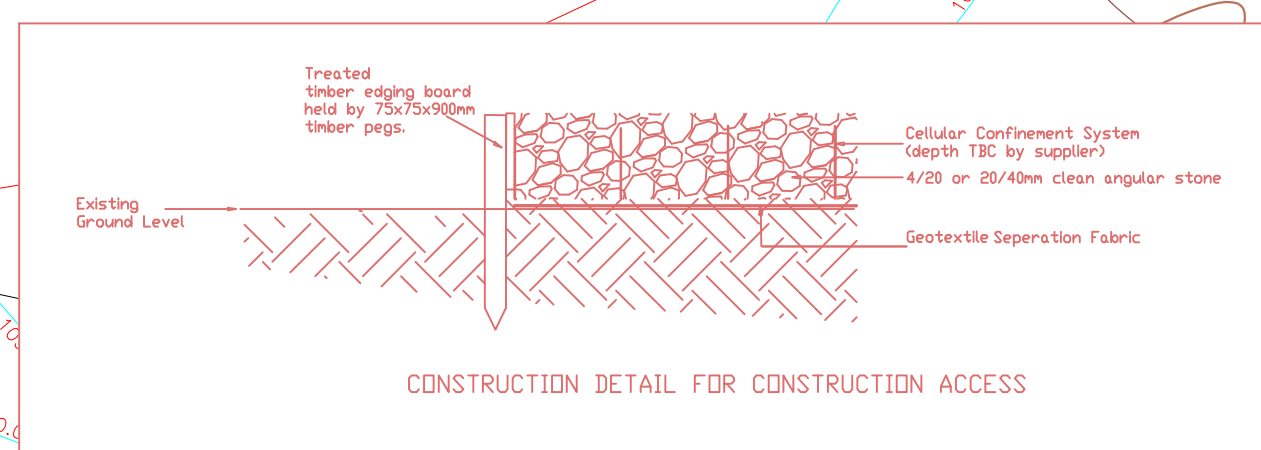
- Category U
- Category A
- Category B
- Category C
- Crown spread: retained trees
- Trees For Removal
- Root Protection Area
- Tree Protection Fence
- Ground Protection Area
- Areas of cut
- Areas of fill

SJ Stephens Associates
Savernake Barn, Stokke Common
Great Bedwyn
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Wiltshire SN8 3LL
01672 871862
www.sjstephens.co.uk

JOB TITLE
TATHAMS PITCH AREA
HIGHGATE SCHOOL

DRAWING TITLE
TREE PROTECTION PLAN

DRAWING NUMBER	380-12	REV	E
REVISIONS			
SCALE	1:200atA1	DATE	MAY 22
DRAWN BY		SJS	



Appendix Fi)



Trench E to B

- 0.9m below asphalt surface
- 60mm asphalt, 200mm sub-base
- very few roots, largest 9mm, approx. 20 others <5mm (some dead)



Trench C to D

- 0.7m below asphalt surface
- 60mm asphalt, 200mm sub-base
- largest root 7mm, approx. 20 others <5mm
- with a mass of roots at C

VERY LITTLE ROOT GROWTH SEEN UNDER THE ASPHALT COURTS, BUT EXTENSIVE ROOT GROWTH JUST OUTSIDE. IF LINE OF EXCAVATION FOR FOUNDATIONS CAN BE KEPT 1m BACK FROM THE EDGE OF THE COURTS THERE WILL BE MINIMAL ROOT DAMAGE

Appendix Fii)



Trench B to F

-dug to 0.8m

- A mass of fibrous roots in top 250mm, then number reducing with depth.
- roots 58mm, 42mm and 13mm
- 6no roots c10mm
- 15no roots 5-10mm
- numerous roots < 5mm

Trench C to F

-dug 0.3m to 0.8m depth

- a mass of fibrous roots in top 250mm, then number reducing with depth.
- roots 12, 13, 20, 22, 28, 30, 35 and 38mm
- 23no roots c10mm
- 34no roots 5-10mm
- numerous roots < 5mm



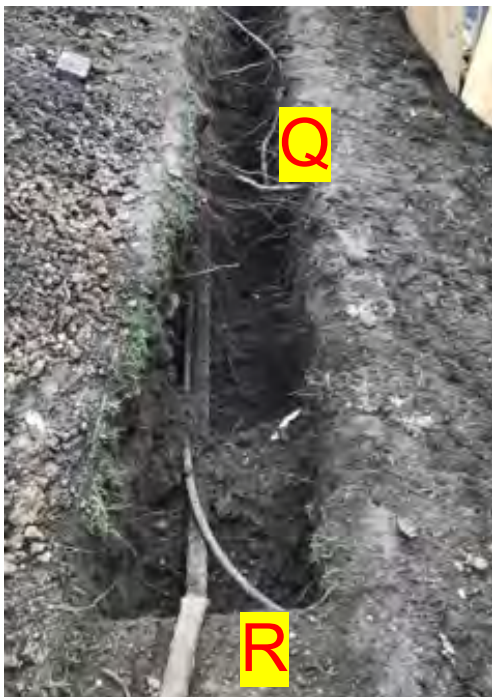
Appendix Fiii)



Trench P to Q

-dug 0.8m to 0.9m depth

- a reasonable number of roots: none of great size
- roots 12, 15, 20, 20 and 26mm
- 3no roots c10mm
- 11no roots 5-10mm
- a reasonable number of roots < 5mm in top 300mm



Trench Q to R

-dug 0.8m to 0.9m depth

- very few roots
- no roots over 10mm
- 2no roots 5-10mm
- a minimal number of roots < 5mm

Appendix F iv)



R to S

- solid concrete 75mm below surface and approx. 250mm deep
- little sign of root growth underneath

Trench S to T

- 300 by 300mm concrete "bridge"
- very minimal root growth
- no roots over 5mm
- minimal roots <5mm

Appendix Fv)



Trench T to U

- dug to 0.9m depth
- very few roots found
- No roots > 10mm
- 3no roots 5-10mm
- approx 20 roots < 5mm



Trench U to V

- dug to 0.3m -0.5m depth when inspected
- fibrous root found, but few larger roots
- no roots > 10mm
- 1no roots 5-10mm
- many roots < 5mm close to surface



Trench V to W

-dug to 0.9m depth, 1 root c5mm. Many small fibrous roots but all <5mm

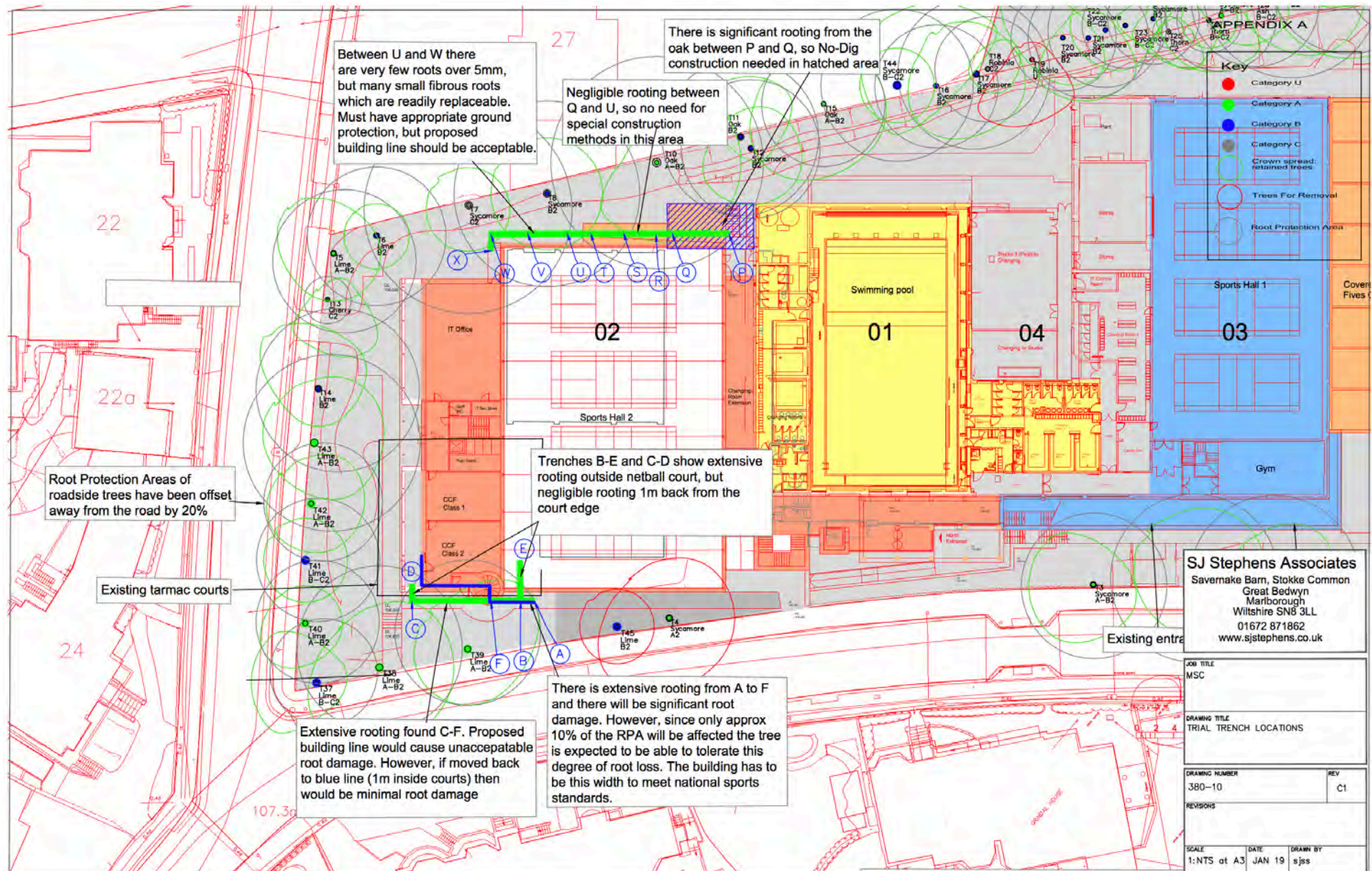


Trench W to X

- dug to 0.9m
- 2no roots c5mm
- fibrous roots < 5mm



At X, burrowed under
playground: almost no roots
Found underneath



Appendix G

