Arboricultural and Development Scope Report

at

St. Mary's College, Waldegrave Road, Strawberry Hill, Twickenham, London, TW1 4SX

(April 2007)

Quaife Woodlands

AR/1419/te

C O N T E N T S

Arboricultural and Woodland Consultants

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ARBORICULTURAL REPORT

LOCATION	St. Mary's College, Waldegrave Road, Strawberry Hill, Twickenham, London. TW1 4SX	REF: **AR/1419/te**
CLIENT	Colvin and Moggridge Landscape Architects, 4 Bourlet Close, London. W1W 7BJ	DATE OF REPORT 12th April, 2007
REPORT PREPARED BY	J. Quaife, Registered Consultant Dip.Arb.(RFS), F.Arbor.A.	DATE(S) OF INSPECTION 13th March, 2007
SURVEY INSPECTOR(S)	Tim Scott-Ellis MICFor Dip Arb (RFS), F Arbor A	SHEET No. 1 of 6

Please note that abbreviations introduced in [square brackets] *are used throughout the report.*

INSTRUCTIONS

Issued by – Mr. M Bhatia of Colvin and Moggridge.

TERMS OF REFERENCE – To survey the subject trees in order to assess their general condition and to provide a Development Scope Plan for the proposed development that safeguards the long term well being of the retained trees in a sustainable manner.

Summary

The proposal is to build a new sports hall on an area of ground to the north-west of the existing complex of buildings. The subject trees are those that surround this particular part of the site. There are some that are of poor quality that should be removed irrespective of any development proposal, and a small group of trees that are of minimal landscape presence and should be removed for any development.
The remaining trees comprise primarily of a line of Horse Chestnuts to the south of the area proposed for the hall.
The sketched position of the new hall is about 10 metres from the centre-line of the Chestnuts which means that the trees will not be compromised and no special foundation design will be required.
Other protection for the trees can be installed in full accord with current standards and guidance.
The landscape impact of the proposal will be neutral and there is scope for new tree planting.
With the arboricultural factors set out in this report taken into account, this proposal is sound in arboricultural terms.

Documents Supplied

- Topographical survey plan by Apex Surveys, ref: 1077/R1 of July 2006 (supplied as a paper plan at A3

Scope of Survey

1.1 The survey is concerned with the arboricultural aspects of the site only.

1.2 The planning status of the trees on site was not investigated.

1.3 No discussions took place between the surveyor and any other party.

1.4 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The body language of trees, DoE booklet Research for Amenity Trees No. 4, 1994).

1.5 The survey was undertaken in accord with British Standard 5837:2005 Trees in relation to construction – Recommendations [BS5837].

1.6 Pruning works will be required to be in accord with British Standard 3998:1989 Tree work [BS3998].

1.7 The planting of a standard tree will be required to be in accord with British Standard 4043:1989 Transplanting root-balled trees [BS4043].

1.8 Underground services near to trees will need to be installed in accord with the guidance given in BS5837 together with the National Joint Utilities Group Booklet 10: 1995 Guidelines for the planning, installation and maintenance of utility services in proximity to trees [NJUG10].

1.9 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

1.10 Where scaffolding needs to be installed within a RPA the provisions of Figure 3 of BS5837 with regard to ground protection must be employed.

1.11 The survey does not set out the working specifications of tree protection measures and engineering and design features, but provides enough detail in principle to demonstrate the feasibility of the scheme.

Survey Method

2.1 The survey was conducted from ground level with the aid of binoculars.

2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.

2.3 No soil samples were taken.

2.4 The height of each subject tree was estimated using a clinometer.

2.5 The stem diameters [SD] were measured in centimetres at 1.5 metres above ground level for single stems, and just above the root flare for multi-stemmed trees. Where access was difficult the diameters were estimated and marked as such on the Schedule of Trees.

2.6 The crown spreads were estimated by pacing.

2.7 The positions of the subject trees are plotted at Appendix A in a general location plan. Please note that the attached plan is for indicative purposes only.

The Site

3.1 The site is situated on the eastern side of Waldegrave Road, just south of the junction with Strawberry Vale to the west. The college comprises various buildings set in spacious grounds.

3.2 The application is concerned with the area of ground to the north-west of the complex of buildings, which is currently a clay surface used for car parking.

3.3 The site is ringed in blue on this extract reproduced from the Geological Survey Drift Map, Sheet 270, South London (by permission of the British Geological Survey ©NERC. All rights reserved). The indicated soil type shown light brown is first river terrace with light yellow alluvial deposits in the river basin.

C06/132-CSL British Geological Survey.
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3.4 This soil overlies London Clay but the depth is unknown to me. Judging by the tree growth in the area there does not appear to be any impediment to normal root growth. The shrinkability of the soil is also unknown to me but although non-shrinkable soils have some resistance to compaction, tree protection measures will not be relaxed.

Subject Trees

4.1 A schedule of the subject trees is set out at Appendix B. The trees surveyed are those in the vicinity of the proposed new hall and have been grouped where appropriate in order to reflect the way in which they have grown.

4.2 The trees are of limited merit individually, but they do have some prominence in the landscape as groups. The line of Horse Chestnuts and one Lime comprising G1 along the southern edge of the hall area has a combined landscape presence that merits a category of A in terms of BS5837 (see footnote[1] at bottom of page 4).

4.3 There are three groups (G2, G4 and G7) that are BS5837 category B, and the remainder are category C, other than two category R trees T5 and T8.

4.4 T5 is a young Beech of poor growth form and has little long term potential. T8 is Elm sucker growth and will succumb to Dutch Elm Disease in due course, probably within 5-7 years. Consequently there is little merit in retaining them, although there is no urgency to remove them.

Tree Constraints

5.1 The proposal is to build a new sports hall in the position indicated at Appendix A and the basis of determining the constraints presented by those trees to be retained is the protection area required by BS5837.

5.2 The BS5837 gives a Root Protection Area [RPA] for each retained tree by reference to Table 2 in the BS. The RPA is usually described as a circle with a radius (Root Protection Area Radius [RPR]) of the prescribed distance within which no unspecified activity should occur, though the shape and position of the RPA can be modified by an arboriculturalist to meet individual site conditions according to the probable distribution of the tree roots. Intrusion into the RPA can take place only where the ground is adequately protected in accord with the requirements of section 9.3 of the BS.

5.3 Quaife Woodlands uses a rounded up system of deriving the RPA radii to produce graduations of half a metre. These are practical and tend to be more generous that the multiplier of BS5837. The table is set out at Appendix C.

5.4 The combined RPAs forming the Construction Exclusion Zone [CEZ] are to be protected by a Tree Protection Barrier [TPB] comprising steel mesh panels of 1.8 metres in height ('Heras'). These panels can be mounted on a scaffolding frame as shown at Figure 2 of BS5837 (Appendix D). This TPB is to be erected before any work commences on site, is to remain in situ undamaged for the duration of all work or each phase, and only to be removed once all work is completed. The only exception is the completion of soft landscaping, but if any excavations however minor, are to be carried out as part of soft landscaping within RPAs, an arboricultural assessment must be carried out beforehand and any additional arboricultural protection measures incorporated. The TPBs are to carry waterproof warning notices denying access within the RPA.

5.5 The RPA radii are included at Appendix B and are annotated at Appendix A. Where there is a range of RPA radii the largest has been used. With group G1 the range of RPA radii is from 6.5 metres to 11 metres. I have taken regard of the site and growth circumstances and for a line of trees such as this the root systems will have extended laterally much the same distance due to growth competition. Realistically therefore I have used an average radius of 10 metres as I do not believe that the RPA has a scalloped edge.

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[1] BS5837 Tree Category Classes

R – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.

A – High quality and value (40 + yrs).
1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values incl. conservation.

B - Of moderate quality and value (20+ years).
1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values incl. conservation.

C – Those of low quality and value (10+ years).
Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a SD of less than 15cm could be considered for relocation.

5.6 None of the other trees is in range of influence to or from the proposed hall.

5.7 The trees on group G1 are an average height of 17 metres which will shade the building, but given the type of usage this will not cause any inconvenience. Indeed in the summer the shade has a useful cooling effect and in the winter the trees will be bare.

5.8 There are no requirements for pruning as a result of the development other than for routine maintenance.

Principles of Tree Protection

6.1 The sketched position of the new hall (dotted black line at Appendix A) will be outside the combined RPA of G1. This avoids the need to use a supported foundation which would have implications for the slab level of the building.

6.2 The edge of the building footprint is outside the RPA, but the area required for scaffolding along that elevation can be protected in accord with Figure 3 of BS5837 (see Appendix E).

6.3 The provision of underground services must avoid RPAs where possible. There does seem to be adequate space to ensure that RPAs are avoided, but if any underground service routes should enter an RPA, the provisions of BS5837 and NJUG 10 should be employed and if necessary, further arboricultural advice sought.

6.4 In all other respects the protection of the retained trees can be effected with a TPB.

6.5 The surface water run-off and soil drainage has not been studied. However, due to the site topography and soil type, I do not foresee any detrimental effects on the trees in hydrological terms as a result of development.

6.6 The protection of the trees will also include recognition of other types of potentially damaging activities, such as the storage of materials (and other substances likely to be toxic to plants), parking, site-building requirements, and the use and parking of plant. Particular care and planning is necessary to accommodate the operational arcs of excavation and lifting machinery, including their loads, especially large building components such as beams and roof trusses. Operations like these have the potential to cause incidental damage and logistical planning is essential to avoid conflicts.

Other Factors

7.1 The use of the hall for sports activities means that the presence of trees is very unlikely to be a hindrance or inconvenience. The reasonably close proximity and orientation of the group G1 is such that it will be prudent to include filtration for rainwater guttering. This should include the incorporation of discrete ladder rest points under the eaves and the provision of sufficient clearance between the edge of the roof and the guttering to facilitate ease of maintenance. In addition, the downpipes should be fitted with easily cleanable traps.

7.2 No indications of car parking in the vicinity of the hall are shown. There is space to the north of the proposed hall that could be utilised without compromise to retained trees, but if surfacing within RPAs should be necessary, specialised construction method would need to be employed and arboricultural advice should be sought.

7.3 There is scope for new tree planting and although the species choice will be a matter of negotiation with the Council's Arboricultural Officer, the principle of that choice will be to select trees of appropriate mature size and in some instances tree-like shrubs may be more suitable. In any event the objective is one of sustainability and ensuring that any planted tree can achieve its normal mature size without the need for regular pruning. This does not mean that regular pruning of established trees is inappropriate.

Conclusion

8.1 The proposal to build a new sports hall can be achieved will no compromise to the trees worthy of retention. The indicated footprint of the building is in a satisfactory position.

8.2 The trees that should be removed (G10) for the development are of little merit and overall the landscape impact of the scheme is neutral.

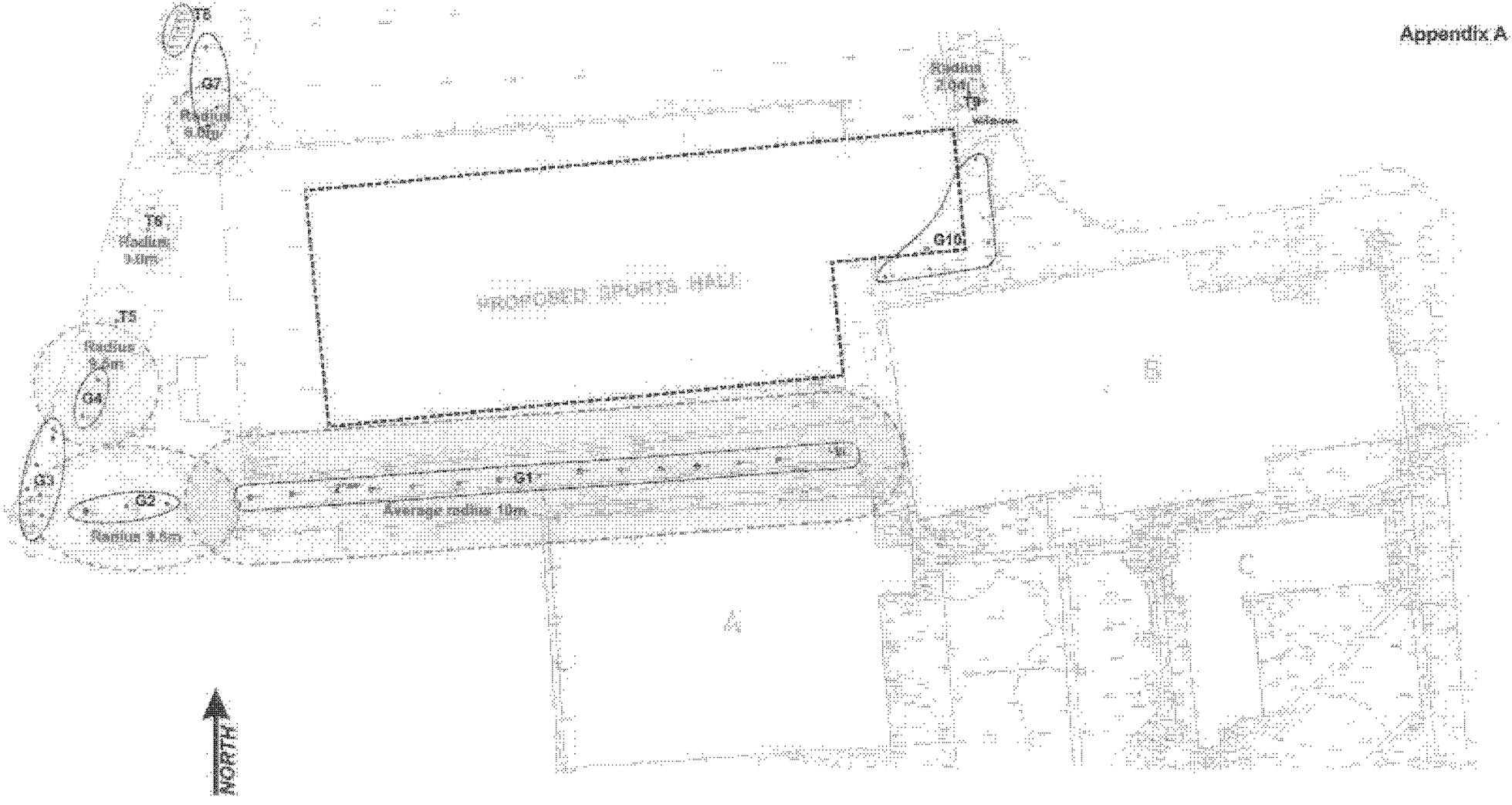
8.3 There is scope to enhance the arboreal landscape with new planting.

8.4 There will be no appreciable post development pressure, and certainly none that would oblige the Council to give consent to inappropriate tree works.

8.5 The retained trees can all be protected in accordance with current standards and guidance.

8.6 I have taken account of the information given to me and my own observations on site and I am satisfied that this proposed scheme is arboriculturally sound provide that the factors I have described are taken into account. Clearly any refinement of the design will need arboricultural advice, but I see no reason why the project cannot proceed with the long term well being of the retained trees safeguarded in a sustainable manner.

Appendix A



BS 5837:2005 Tree Categories

- R Tree that should be removed
- A Tree that is highly desirable for retention
- B Tree that is desirable for retention
- C Tree of no particular merit, could be retained

Tree Protection Area with radius in metres

Revised indicative position of New Hall

Quaife Woodlands **Arboricultural Survey AR/1419/te**

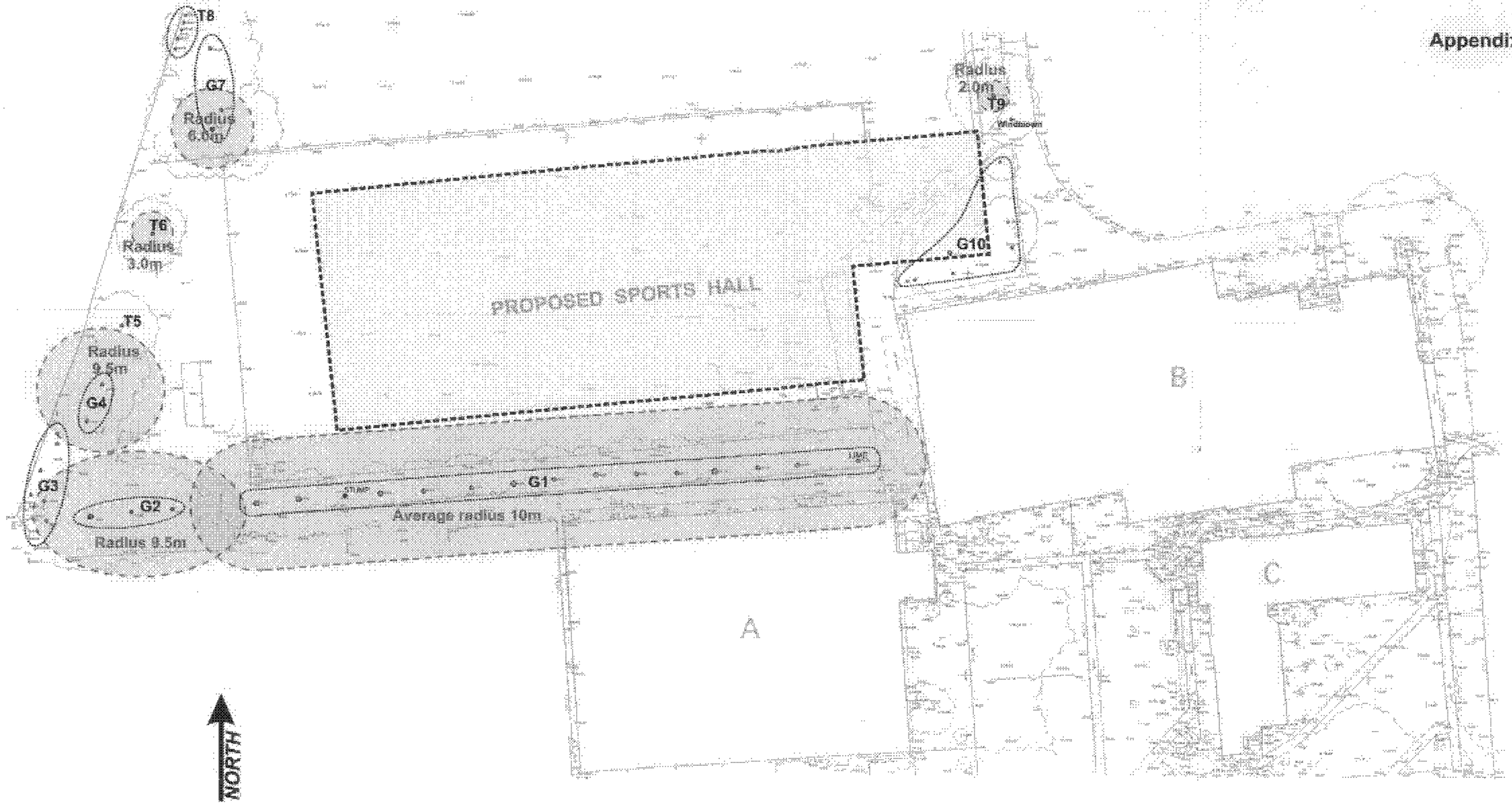
St. Mary's College, Waldegrave Road, Twickenham, TW1

Site Plan - Arboricultural Development Scope Plan April 2007

Scale: approximately as per bar

DO NOT SCALE FROM DRAWING

Appendix A



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DO NOT SCALE FROM DRAWING

KEY

Pre: Prefix: **T** = Tree **G** = Group **H** = Hedge

No Tree reference number.

Ht Tree Height in metres.

SD Stem diameter in centimetres at 1.5 metres above ground level or immediately above the root flare for multi-stemmed trees.

N-S-E-W Branch spread in metres to the four compass points.

CrB Height in metres of crown clearance above adjacent ground level.

AC Age Class **Y** – Young. **S** – Middle aged. **M** – Mature. **O** – Over-mature. **V** – Veteran.

PC Physiological Condition **G** – Good **F** – Fair **P** – Poor **D** – Dead

SC Structural Condition **G** – Good **F** – Fair **P** – Poor **D** – Dangerous

ERC Estimated remaining contribution in years **D** - less than 10, **S** - 10-20, **M** - 20-40, **L** - more than 40.

BS Category grading

R – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.

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Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a SD of less than 15cm should be considered for relocation.

Rad Root Protection Radius in metres.

RPA Root Protection Area in square metres.

Appendix B

Arboricultural Survey AR/1419/te - St. Mary's College Appendix B

Pre	No	Species	Ht	SD	N-S-E-W	CrB	AC	PC	SC	ERC	BS	Rad	RPA	Observations	Recommendations
T	1	Various	17	53 to 92	7-3-7-3	2.0	S-M	F	F	M	A2	6.5 to 11.0	133 to 390	Horse chestnut x 13, Lime x 1. Generally good, car park to north, recently come into use, previously a sports pitch. Some evidence of decay at base of stems of trees 10 & 11 (numbered from eastern end).	None
T	2	Horse chestnut x 3	17	55 to 78	7-3-7-3	2.0	M	F	F	M	B2	7.0 to 9.5	154 to 284	Central tree has lost significant major limb and is suppressed.	Remove central tree
T	3	Various	16	<30	2-2-2-2	2.0	S	F	F	S	C	3.5	38	Elm x 5, Sycamore x 1, Honey locust x 2. Young trees around stump of elm. Dead wood in lower crown, pruned over west (road) side.	Remove Elms
T	4	Horse chestnut x 2	18	54 & 76	5-4-2-4	1.0	M	F	F	M	B2	6.5 to 9.5	133 to 284	North tree dominant & suppressing south tree. S tree asymmetrical to S as a result.	None
T	5	Beech	6	21	3-3-3-3	2.0	S	F	F	D	R	-	-	Included fork at 1.5 m. Co-dominant leaders.	Remove & replace
T	6	Beech	8	25	4-4-4-3	1.5	S	F	F	L	C	3.0	28	Poorly pruned, stub at 1.5 m on E side.	None
T	7	Scots pine	12	49 & 34	4-4-4-4	2.0	S	F	F	L	B2	4.5 to 6.0	64 to 113	Previously crown lifted.	None
T	8	Elm	7	<15	3-3-3-3	1.0	Y	G	G	S	R	-	-		Remove & replace
T	9	Horse chestnut	4	18 at 1 m	2-2-2-2	1.0	Y	F	F	L	C	2.0	13		None
T	10	Various	9	23	3-3-3-3	2.0	S	G	G	L	C	-	-	Ornamental group containing Silver birch, Horse chestnut, Myrobalan plum, shrubs.No obvious defects	Remove for development

BS5837:2005 Table 2

Root Protection Area radii in ½ metre graduations

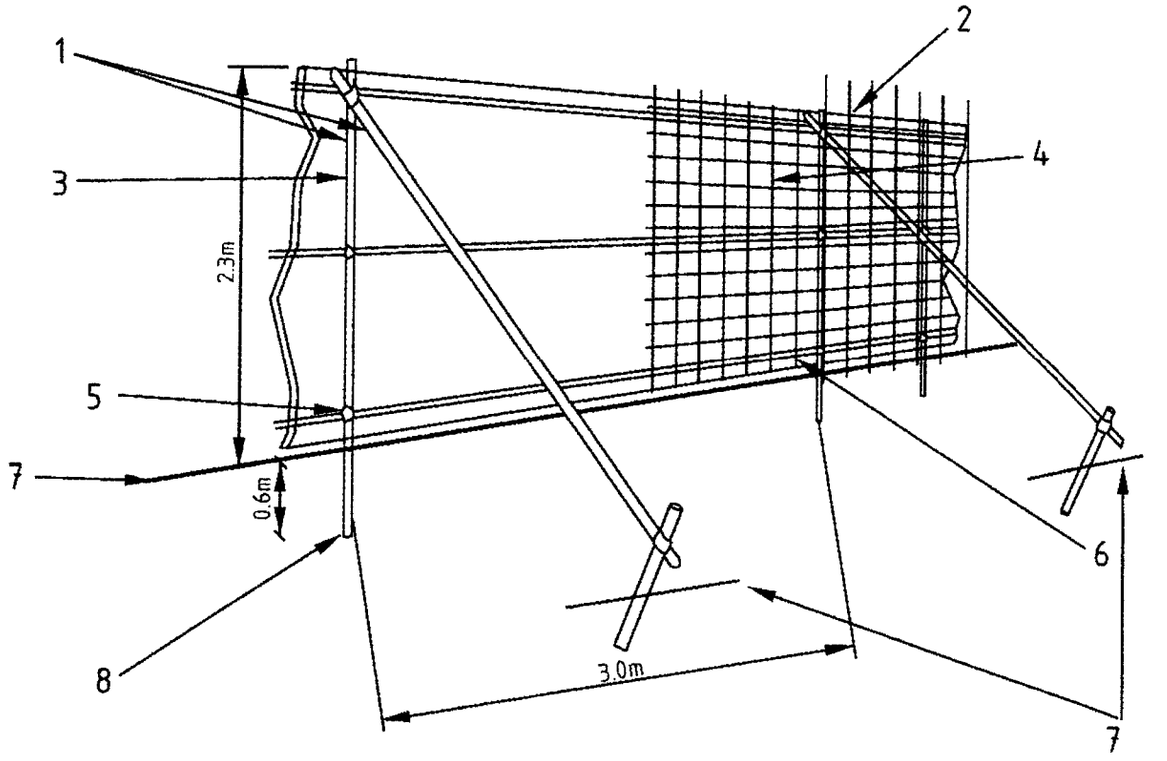
Appendix C

Multiple Stems up to diameter (mm)	*Single Stem up to diameter (mm)*	*RPA Radius (m)*	*RPA (m^2)*
1500	1250	15.0	707
1450	1210	14.5	660
1400	1170	14.0	616
1350	1120	13.5	573
1300	1080	13.0	531
1250	1040	12.5	491
1200	1000	12.0	452
1150	960	11.5	416
1100	920	11.0	380
1050	870	10.5	346
1000	830	10.0	314
950	790	9.5	284
900	750	9.0	255
850	710	8.5	227
800	670	8.0	201
750	620	7.5	177
700	580	7.0	154
650	540	6.5	133
600	500	6.0	113
550	460	5.5	95
500	420	5.0	79
450	370	4.5	64
400	330	4.0	50
350	290	3.5	38
300	250	3.0	28
250	210	2.5	20
200	160	2.0	13

Appendix D

Extract from British Standard 5837: 2005, Trees in relation to construction

Figure 2. Indicated framework support as the usual method of support for steel mesh panels ('Heras'). Some variation as described in the Report text can be employed if appropriate



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

6 Wire twisted and secured on inside face of fencing to avoid easy dismantling

7 Ground level

8 Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

Appendix E

Extract from British Standard 5837: 2005, Trees in relation to construction

Figure 3. Scaffolding within the Root Protection Area [RPA]

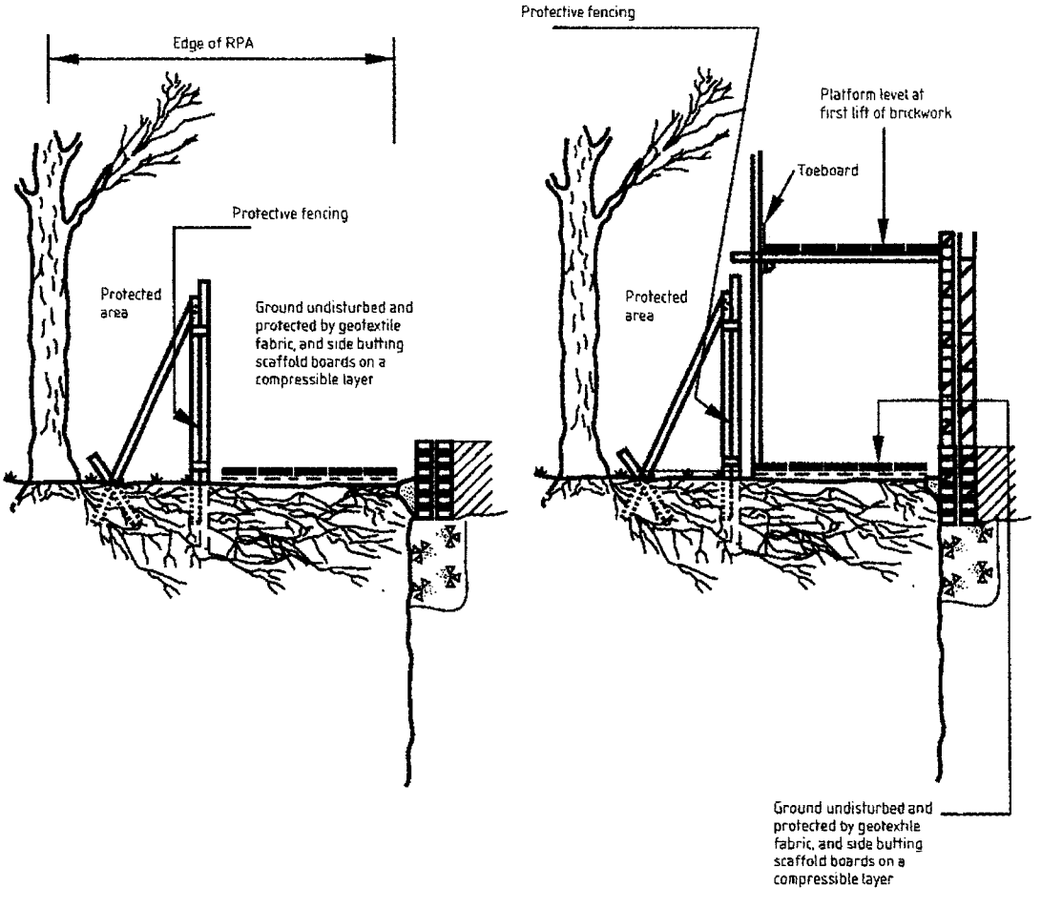


Figure 3 — Scaffolding within the RPA