Sylvanus

Arboricultural Consultants Ltd

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Arboricultural Survey Report

at

'Patchetts'
Broadway
Derby

for and on behalf of

Mr Peter Ellse

16 December 2008

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SUMMARY

This report is concerned with the arboricultural implications associated with the development of grounds associated with ‘Patchetts’, Broadway, Derby. It sets out the arboricultural constraints that might be encountered and advises as to how they might be overcome or mitigated.

The report is produced in accordance with the guiding principles of British Standard 5837 (2005) *‘Trees in Relation to Construction – Recommendations’.*

The Root Protection Areas (RPA’s) of all trees surveyed are calculated and recorded in the Tree Survey Schedule where they are expressed in linear metres; it is at this distance that tree protective barriers should be erected. Where construction is proposed within these areas special techniques must be employed and whilst general guidance is contained herein further advice must be sought from a Chartered Arboriculturist.

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1 INTRODUCTION

***1.1 Author's Qualifications and Experience*:** John Booth is a Chartered Arboriculturist, a Chartered Environmentalist, a member of the Expert Witness Institute, a Fellow, Registered Consultant and past national Chairman of the Arboricultural Association. He has over twenty five years experience of arboriculture and amenity tree management and has written papers published in respected journals such as the International Journal of Urban Forestry. He is trained in the use of the Quantified Tree Risk Assessment (QTRA) methodology and is a Bond Solon/Cardiff University certificated Expert Witness. A full CV can be found at Appendix 1.

This report is based on his site observations and the information provided.

1.2 Instructions and Brief: Mr Jeff James of Montague Architects Ltd acting on behalf of Mr Peter Ellse (the client), sought a fee proposal for the work necessary to inform the possible development of grounds associated 'Patchetts', Broadway, Derby (the site). A fee proposal was issued and accepted by the client on 15 December 2008. The brief was to undertake a tree survey to inform the development proposal. All tree survey data is recorded in the Tree Survey Schedule.

1.3 Documents & Information Provided: A site plan was provided as was a copy of Derby city Council's Tree Preservation Order (TPO) No 423 of 2005. Excerpts of the survey plan have been used to supplement the Tree Survey Schedule and can be found at Appendix 2.

1.4 Limitations:

1.4.1 The findings and recommendations contained within this report are, assuming its recommendations are observed, valid for a period of twelve months from the date of survey. Trees are living organisms subject to change – best practice dictates they are inspected on an annual basis for reasons of safety.

1.4.2 Tree rooting characteristics and soils are both enormously variable as are their interactions. This makes attempts to quantify subsidence risk assessment impossible. No effort has been made to assess subsidence risk potential nor should any be construed.

1.4.3 Whilst every effort has been made to detect defects within the trees inspected, no guarantee can be given as to the absolute safety or otherwise of any individual tree. Extreme climatic conditions can cause damage to even apparently healthy trees. All recommendations are given in the context of the site's current usage; any change will dictate a re-inspection.

1.4.4 Where trees were clad with ivy (*Hedera helix*) or where dense twig growth obscured the tree trunk, this was recorded in the Tree Survey Schedule. The inspection of such trees is impeded; ivy and twig growth should be removed and a further inspection carried out. The Retention Categories awarded to such trees can only be considered provisional.

1.4.5 This report has been prepared for the sole use of the client. Any third party referring to this report or relying on the information contained herein does so entirely at his or her own risk.

1.4.6 This report should not be construed as representing a detailed tree inspection report; such is available upon request. All recommendations are made in the context of the sites current usage; any change will dictate a further inspection.

2 SITE VISIT AND OBSERVATIONS

2.1 ***Site Visit*****:** A site visit was carried out on 16 December 2008 by John Booth. The trees were inspected visually from the ground. No drilling or excavation was carried out on this occasion. The weather at the time of the inspection was dry and visibility was adequate for the purposes of the visit.

2.2 ***Brief Site Description:*** 'Patchetts' is a single, detached dwelling served by a long drive off Broadway. The dwelling appears to have been in a state of disuse for a number of years and is in disrepair.

2.2 ***Tree Survey Methodology:*** The survey was undertaken in accordance with the guiding principles of British Standard 5837 (2005) *'Trees in Relation to Construction: Recommendations'* and the trees were assessed objectively and without reference or influence being given to any proposed site layout. Using 'Visual Tree Assessment' techniques the trees were surveyed from the ground; this is the method generally adopted and is appropriate in this instance. All trees surveyed are listed in the Tree Survey Schedule and numbered by hand on an excerpt of the plan provided (see Appendix 2). Groups have been identified as such in instances as are defined in BS 5837 (2005) *'Trees in Relation to Construction: Recommendations*' ie where, by virtue of the fact that trees are in such close proximity they function as a unit, in visual terms, aerodynamically or culturally they are identified in the Tree Survey Schedule and on the associated plan with the prefix 'G'. In the case of groups the principal species are recorded, other minor species may be omitted.

Information recorded in the survey includes:

2.2.1 Species – The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In the case of groups only the principal species are recorded, other minor species may be omitted.

2.2.2 Tree Heights – are estimated in metres. Estimated mature heights are given in brackets. In the case of groups the maximum height is recorded.

2.2.3 Crown Height – The height to the lowest branch is estimated in metres. In the case of groups of trees minimum crown height was recorded.

2.2.4 Trunk Diameters – measured at 1.5 metres above ground and recorded in millimetres to the nearest 10mm. However, where the trunk of any tree breaks

below 1.5 metres it is considered a multi-stemmed tree and, in accordance with British Standard 5837 (2005), '*Trees in Relation to Construction: Recommendations'* it is measured immediately above the root flare. In the case of groups of trees the maximum diameter was recorded. In some instances the trunk of the tree could not be accessed, for example where dense vegetation exists, in this instance the trunk diameter was estimated.

2.2.5 Crown Radius – was recorded in metres along each of the cardinal points. In the case of groups of trees the maximum peripheral spread was recorded.

2.2.6 Age Class – recorded as follows:

Yng - Young tree; <1/3 of normal life expectancy
Mid - Middle aged tree; between 1/3 & 2/3 normal life expectancy
Mat - Mature tree; has attained optimum stature
OM - Over Mature tree; declining
Vet - Veteran tree; tree of great age which is of exceptional value culturally, in the landscape or for nature conservation.

2.2.7 The ***Condition*** of the trees is based upon a preliminary assessment categorised thus:

- Good
- Fair
- Poor
- Very Poor/Dead

In the case of groups the category awarded is that typical of the group.

2.2.8 Life Expectancy – estimated; ie less than 10 years, 10-20 years, 20-40 years, more than 40 years.

2.2.9 Preliminary Recommendations – works required regardless of development proposals.

2.2.10 A ***Retention Category*** – is given as follows which corresponds with Table 1 (See Appendix 3) of British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations* ie:

- **A** - Trees of a high quality and value, including visual amenity value (Sub categories 1, 2, 3). It is usual for such trees to be retained unless the planning merits of a particular scheme or layout over-ride.

- **B** - Trees of moderate quality and value, including visual amenity value (Sub categories 1, 2, 3). Such trees should be considered for retention.

- **C** - Trees with a stem diameter of less than 150mm or which are of low quality and value including visual amenity value (Sub categories 1, 2, 3). ***The retention of Category C trees should not be allowed to impose a constraint on development.*** Trees with a stem diameter of less than 150mm should be considered for transplanting.

- **R** - Trees in such a condition that they should be removed.

Sub-categories are also awarded and reflect where the value of a particular tree lies ie:

- **Sub-category 1** – awarded in recognition of arboricultural value,
- **Sub-category 2** – awarded in recognition of landscape value,
- **Sub-category 3** – awarded in recognition of cultural value, including historic value.

All sub-categories carry equal weighting and some trees may qualify in more than one category, although they will not accrue additional value if they do.

2.2.11 **Root *Protection Area (RPA)*** – In respect of all trees surveyed the RPA has been calculated and is given in the Tree Survey Schedule. The figure given represents the radial distance, from the trees trunk, at which the barriers should be erected.

The RPA is calculated thus:

Number of Stems	Calculation
Single Stem Tree	RPA (m^2) = $\frac{(\text{stem diameter (mm) @ 1.5m x 12})^2 \times 3.142}{(\quad 1\,000 \quad)}$
Tree with more than one stem arising below 1.5m above ground level	RPA (m^2) = $\frac{(\text{Basal diameter (measured immediately above root flare (mm) x 10)}^2 \times 3.142}{1\,000}$

British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations'*, Page 8

The RPA is capped at 15 metres in line with BS 5837.

3 TREE PROTECTION – GENERAL

Since no details are yet available as to the proposed development layout the following is given as general guidance.

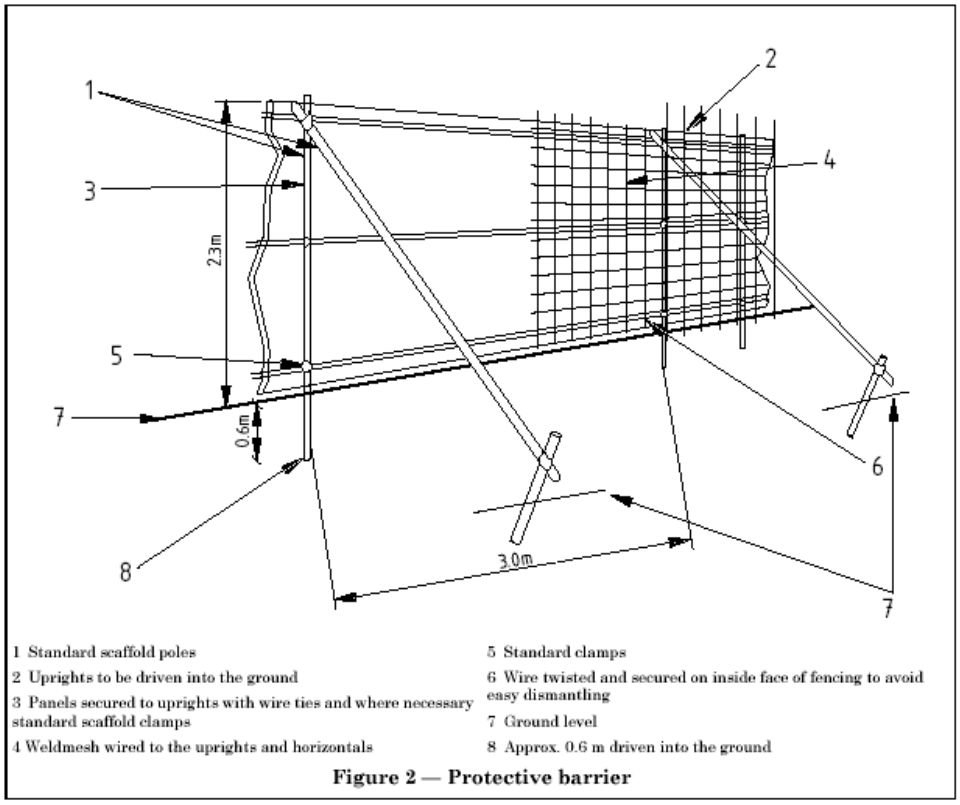
3.1 ***Below Ground Constraints:*** In order to achieve any development various construction activities are required and great care and consideration needs to be given as to how such activity can proceed whilst avoiding damage to retained trees.

"Damage can occur as a result of direct impact between construction machinery and parts of a tree. Often greater damage and even destruction occurs quite invisibly due to the deformation of the soils in which the trees root. Soil stripping, trenching and compaction all have serious effects on trees and if such trees are to be successfully retained in the long term it is necessary to protect the soil during construction."

British Standard 5837, (2005), Para 3.1.2, '*Trees in Relation to Construction:– Recommendations*', Page 2

3.1.1 In order to avoid damage to their roots, trees should be protected using protective barriers as are detailed in British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations*' and as illustrated in Figure 1. This should be erected around the RPA prior to the commencement of the demolition/construction activity and must remain in situ and intact until completion. The area within these barriers should be considered sacrosanct, and no work

should ordinarily be permitted within them. In an effort to ensure any tree protective barriers remain during construction, it is further advised that they carry signage as per Figure 2 and that the Site Agent is briefed accordingly. On sites which are particularly 'tree sensitive' the Local Planning Authority (LPA) may apply conditions to a planning permission requiring arboricultural supervision.



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

Figure 1 - Tree Protection Barrier

BS5837, (2005), '*Trees in Relation to Construction: Recommendations*, Page 13.

Figure 2 - Barrier Notice

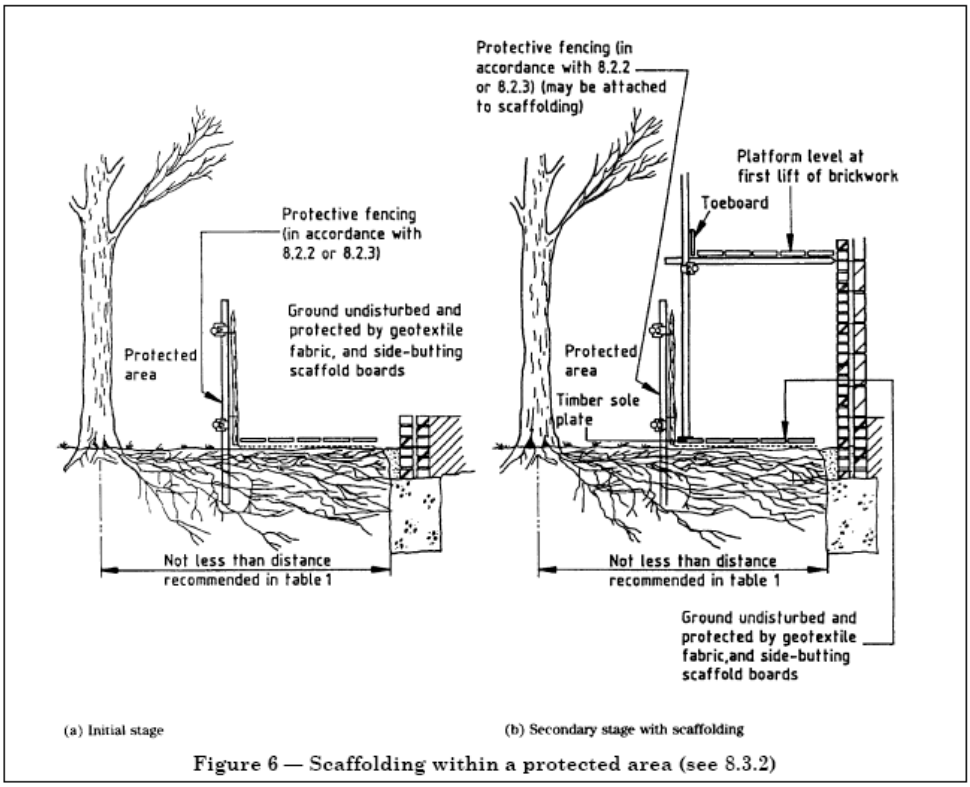


Figure 6 — Scaffolding within a protected area (see 8.3.2)

Figure 3
Adapted Barrier Incorporating Temporary Ground Protection
British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations*, Page 14

3.1.2 Should space be required within the RPA to facilitate construction, for example, for the erection of scaffold, this can be satisfactorily achieved by employing the technique illustrated in Figure 3 above.

3.1.3 In some instances it is possible to offset the RPA by up to 20% and this may afford more room to manouvre should such be necessary. Further arboricultural advice should be sought regarding the off-setting of RPA's.

3.1.4 In addition and in order to maximise a sites' development potential, it may be possible to employ special foundation design such as mini/micro pile and suspended beam or a cantilevered foundation; these enable construction within the RPA as they limit excavation to a minimum; the majority of a trees roots occur within the upper 600mm of the soil. Any such structure will need to carry the weight of the building without transferring the load thereby creating soil compaction. The location of any mini piles would need to be flexible so as to avoid damage to major roots and the necessary excavation for the piles may need to be carried out by hand. In these circumstances a suspended floor slab will need to be incorporated and the void beneath should be externally vented so as not to inhibit gaseous exchange. Where pile foundations are to be employed consideration needs to be given to the selection of the type of piling rig so as to avoid conflict with low, overhanging tree branches. Further advice from a structural engineer should be sought on this matter with a chartered arboriculturalist advising upon the final design. Where it is proposed to construct within the RPA careful consideration must be given to the avoidance of above ground conflicts (See Para 3.2).

3.1.5 ***Hard Surfacing:***

New: It is permissible to construct hard surfacing for drives and paths within the RPA, however, it can have implications for tree roots. These implications can be overcome by employing a 'no-dig' three dimensional, cellular confinement system eg 'Cellweb' (see Appendix 5). This construction is load bearing, negates the need for deep excavation, and unlike some materials eg hoggin, can allow for

gaseous exchange and moisture percolation. Further advice of a structural engineer must be sought to design the final specification in accordance with these parameters, with the final design being agreed with a chartered arboriculturalist.

Existing: Where hard surfacing exists within the area defined as the RPA, it is acceptable to erect protective barriers at the extent of that hard surface, since the surface itself will afford protection to tree roots. However, care must be taken to avoid collision between overhanging tree branches and passing construction traffic. Where is proposed to remove/regrade existing hard surfacing it is advised that an arboricultural method statement should be sought.

3.1.5 ***Services*** –

Since the location of services has yet to be determined no specific advice can be given. However, careful consideration must be given to the siting of underground services eg drains, electricity, gas etc and trenches should ideally not be sited within the RPA; where it is unavoidable, an arboricultural method statement should be sought. In order that they can assess any impact upon trees it is likely that the LPA will require the submission of details regarding service location and installation methodology prior to the granting of any planning consent.

3.2 ***Above Ground Constraints*****:** Consideration must also be given to the aerial parts of the tree in relation to any construction; particularly residential buildings. Conflict frequently arises where dwellings are placed close to trees and such gives rise to concern relating to shade, falling debris such as leaves and twigs and from a perceived threat of tree failure. This can often be overcome, in part at least, by carefully ensuring adequate useable garden space is provided and is not dominated by trees and that principal windows face away from trees. The LPA are likely to resist any proposal that results in built structures close to trees or that makes inadequate provision for their future growth. This is because occupants regularly feel apprehensive and pressure to fell or heavily prune trees results. Usually and particularly in the case of immature trees, the distances required to avoid these conflicts will be greater than those expressed as the RPA.

3.3 Tree Constraints Plans (TCP): British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations'* advises that in some instances a TCP might assist in designing an arboriculturally acceptable layout. A TCP is a graphical means of illustrating certain information eg tree canopies as they are in reality and the position of the RPA. Such plans are available upon request.

4 OTHER CONSIDERATIONS

4.1 Trees Subject to Statutory Controls:

4.1.1 No attempt has been made to establish the existence of either TPO's or Conservation Areas, it is however known that at least one TPO is in force on the site ie TPO No 423 of 2005. The following is given as general advice:

4.1.2 Trees and hedgerows can be subject to statutory control and severe penalties can result from unauthorised works or damage. It is recommended that prior to commencement of any tree works the LPA are contacted. When proposing to do works to trees within a Conservation Area, with some exceptions, six weeks written notice must be given to the LPA. This notice is often referred to as a Section 211 Notice. Having received such a notice the LPA has essentially only one of two options at its disposal ie:

- **Impose a TPO** in respect of those trees/some of those trees subject to the notice. This prevents any works being carried out without the express, written consent of the LPA,

Or

- **Do nothing** It is considered best practice for an LPA to acknowledge receipt of the notice but there is no obligation for it to do so. After six weeks of serving the notice the tree owner may proceed with the works detailed in the Section 211 Notice.

The LPA cannot, in response to a Section 211 Notice, issue a conditional consent.

4.1.3 TPO's are made in the interests of preserving amenity, usually taken to mean public visual amenity. Trees largely removed from public view and which have little visual impact are not usually made the subject of a TPO. Subject to certain exemptions eg trees which are dead, dying or dangerous, the written consent of the LPA must be obtained prior to undertaking works to trees subject to TPO.

4.2 ***Trees and Wildlife*****:** Trees play host to nesting birds many of which are protected by law. All British bat species are also protected and can be found in trees. Great care needs to be taken to avoid disturbance and consideration should be given to the timing of tree works in order to avoid disturbance. Where the presence of protected species is suspected, Natural England should be contacted for advice.

4.3 ***Implementation of Tree Works*****:** Guidance on hiring an Arborist is available from Sylvanus Ltd. Also, the Arboricultural Association's Register of Contractors is available free from Ampfield House, Romsey, Hants, SO51 9PA (Telephone 01794 368717, www.trees.org.uk). Any appointed contractor should carry out all tree works to BS 3998 (1991) '*Recommendations for Tree Work'* as modified by research that is more recent. Sylvanus Ltd can assist with both the appointment of a tree surgery contractor and provide on-site supervision.

Local contractors worthy of consideration are:

- Midland Tree Management. Tel 07973 722774
- Eco Tree Company. Tel 07931 252240

4.4 ***New Planting:*** It is possible that any planning permission issued will carry a condition requiring new tree planting, particularly in instances where a proposal involves the removal of trees. Further advice is available upon request.

5 REFERENCES

- British Standard 5837:2005 '*Trees in Relation to Construction: Recommendations*.'

- British Standard 3998:1989 '*Recommendations for Tree Work*'.
- The Body Language of Trees, C Mattheck, H Breloer.
- Mattheck, C. (2007), Updated Field Guide for Visual Tree Assessment.

6 RECOMMENDATIONS

6.1 This report provides guidance for the design team and sets out constraints relating to the trees on site. Tree survey and RPA detail can be found in the Tree Survey Schedule.

6.2 Following the preparation of the final layout an arboricultural implications assessment and tree protection plan will need to be prepared.

6.3 It is recommended that a site visit is undertaken with the Local Authority's Planning Case Officer and Tree Officer to ensure that the approach for development and tree retention is suitable; therefore ensuring any issues are resolved from the outset. Sylvanus Ltd would be happy to make representation at such a meeting.

J A Booth *MBA, MSc, MICFor, CEnv, FArborA, MIEEM, MEWI, DipArb(RFS), CUEW, LCGI(Hort), NDArb*
Chartered Arboriculturist, Chartered Environmentalist, Arboricultural Association Registered Consultant.

7 Tree Survey Schedule

Tree No	Species	Ht (m)	Stem Dia (mm)	Branch Spread (m)				Crown Ht. (m)	Age Class	Cond.	Preliminary Recs.	Life Exp. (yrs)	Ret Cat	RPA (Lin M)
				N	E	S	W							
G1	Ash, Corsican Pine, Norway Maple, Atlas Cedar (*Fraxinus excelsior, Pinus nigra* spp. 'Laricio*, Acer platanoides, Cedrus atlantica)*	27 (30)	670	5	5	5	5	4	Mat	B	Remove Ivy and reinspect	>40	B2,3	8.0
G2	Silver Birch, Lime (*Betula pendula, Tilia europaea)*	27 (30)	670	5	5	5	5	4	Mat	B	Fell 3 dead Birch marked **X** on plan.	>40	B2,3	8.0
1	Red Horse Chestnut (*Aesculus X carnea*)	8 (25)	360	1	1	1	1	4	Mid	C	Fell	-	R	4.3
G3	Ash, Red Oak (*Fraxinus excelsior, Quercus rubra)*	20 (25)	280	2	2	2	2	5	Mid	C	Remove Ivy and reinspect	>40	C2	3.4
2	Laurel (*Prunus laurocerasus*)	5 (10)	m/s 500	2	2	2	2	3	Mat	B	None at this moment in time	10-20	C1	5.0
3	Laurel (*Prunus laurocerasus*)	7 (10)	490	3	3	3	3	2	Mat	B	None at this moment in time	10-20	C1	5.9

Tree No	Species	Ht (m)	Stem Dia (mm)	Branch Spread (m)				Crown Ht. (m)	Age Class	Cond.	Preliminary Recs.	Life Exp. (yrs)	Ret Cat	RPA (Lin M)
				N	E	S	W							
4	Apple (*Malus* sp)	6	170	1	1	1	1	2	Mat	D	Fell	-	R	2.0
5	Yew *(Taxus baccata)*	8	370	3	3	3	3	2	Yng	B	Remove Ivy and reinspect	>40	B1	4.4
6	Apple (*Malus* sp)	7	280	3	3	3	3	2	Mat	C	None at this moment in time	<10	C1	3.4
G4	Apple (*Malus* sp)	6	200	2	2	2	2	0	Mat	C	None at this moment in time	<10	C2	2.4
7	Cypress (*Chamaecyparis* sp)	4	130	1	1	1	1	0	Yng	B	None at this moment in time	20-40	C1	1.6
8	Apple (*Malus* sp)	7	m/s 340	3	1	3	4	2	o/m	C	None at this moment in time	<10	C1	3.4
9	Magnolia (*Magnolia* sp)	6	130	3	3	3	3	0	Yng	B	None at this moment in time	20-40	C1	1.6

Tree No	Species	Ht (m)	Stem Dia (mm)	Branch Spread (m)				Crown Ht. (m)	Age Class	Cond.	Preliminary Recs.	Life Exp. (yrs)	Ret Cat	RPA (Lin M)
				N	E	S	W							
10	Cherry (*Prunus* sp)	6	260	2	2	2	2	2	O/M	C	None at this moment in time	<10	C1	3.1
11	Cherry (*Prunus* sp)	6	m/s 350	2	2	2	2	2	O/M	C	None at this moment in time	<10	C1	3.5

8 APPENDICES

Appendix 1

Curriculum Vitae

CURRICULUM VITAE

John Booth **MBA, MSc, MICFor, CEnv, FArborA, MEWI, MIEEM, DipArb(RFS), CUEW, LCGI(Hort), NDArb**

DATE OF BIRTH 30.06.64

PROFESSIONAL QUALIFICATIONS
Merrist Wood College, National Diploma in Arboriculture (Distinction) (B Tec), 1987-1990
Merrist Wood College, RFS Professional Diploma in Arboriculture, 1992-1993
Nottingham/Derby Universities, Masters in Business Administration (MBA) 2002-2005
Sheffield/Hallam University, MSc in Environmental Management (Distinction), 2005-2006
Cardiff University, Expert Witness Certificate, 2007
Lantra Certificate – Professional Tree Inspection, 2007

CAREER
2007 - Director of Sylvanus Arboricultural Consultants Ltd. (www.jabooth.co.uk)
1994 – 2007 - Arboricultural Manager for Derby City Council.
1990 – 1994 – Tree & Landscape Officer for Wycombe DC
1988 – 1989 – Assistant Arboricultural Officer for Bolton MBC
1981 – 1987 – Arborist for Bolton MBC

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)
The maintenance of an active CPD record is a strict membership requirement of the following professional organisations to which I subscribe –

- The Arboricultural Association
- The Institute of Chartered Foresters
- The Institute of Expert Witness's
- The Institute of Ecology and Environmental Management

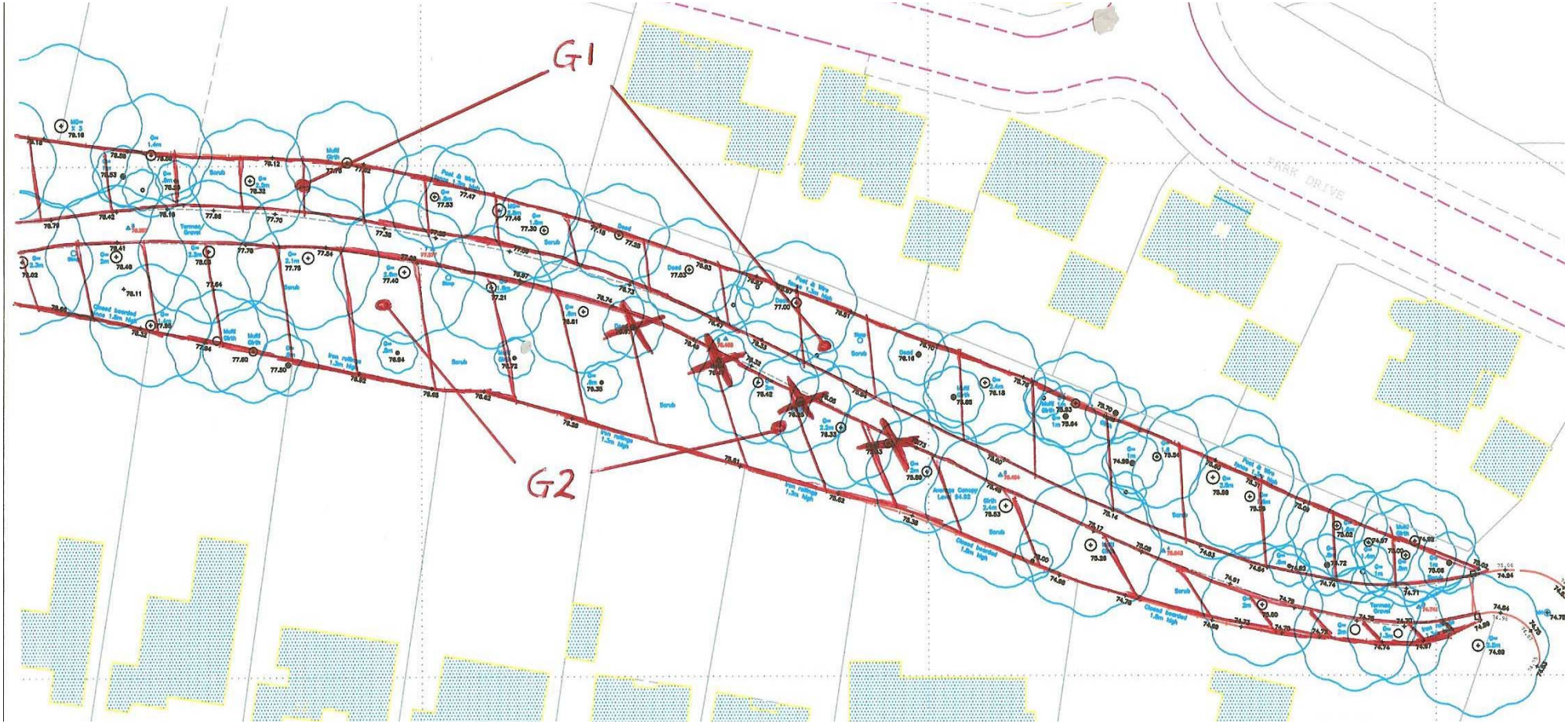
MEMBERSHIP OF PROFESSIONAL BODIES
Chartered member of the Institute of Chartered Foresters
Chartered Environmentalist
Fellow, past National Chair, Trustee and Registered Consultant of the Arboricultural Association
Member of Institute of Ecology and Environmental Management
Licentiate of City & Guilds Institute
Assessor for the Professional Diploma in Arboriculture

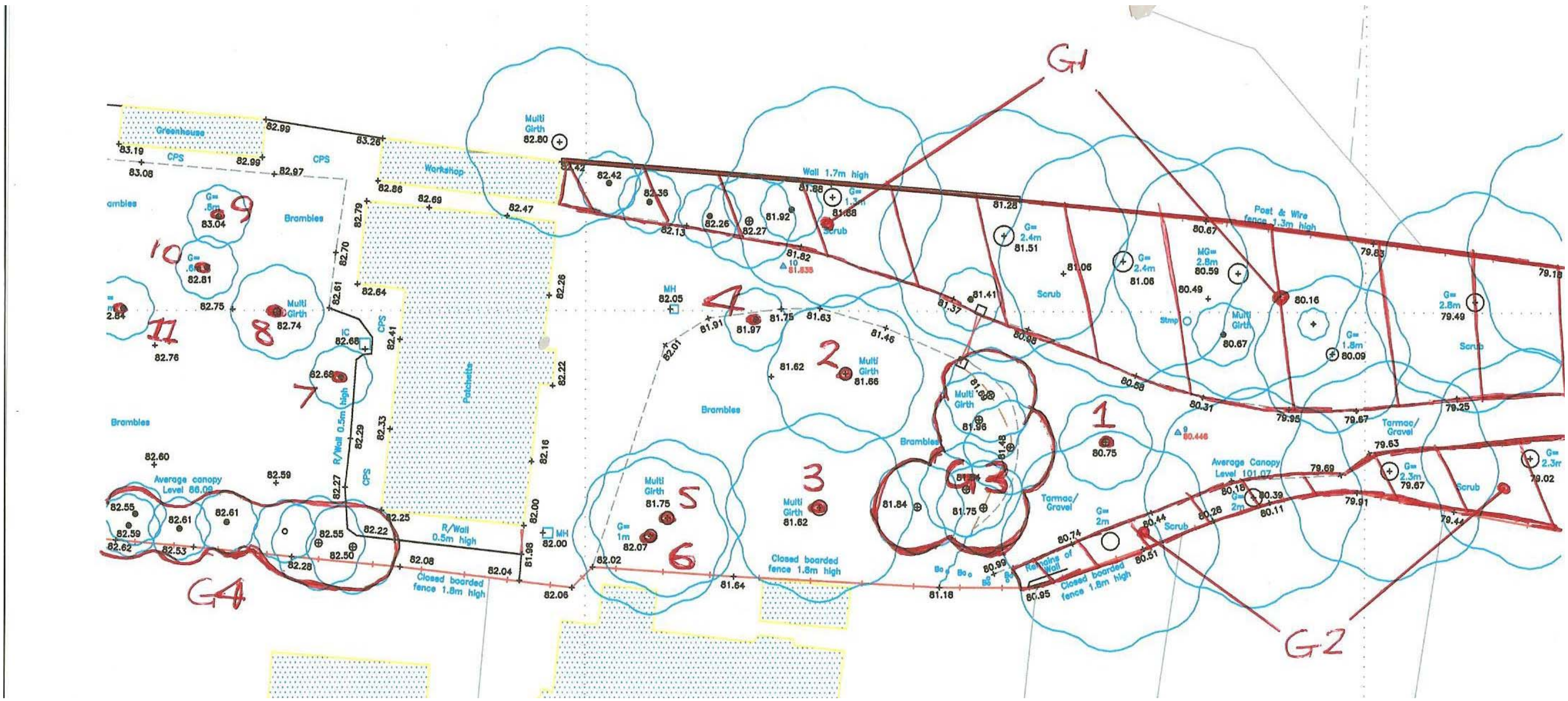
PUBLICATIONS
Numerous articles and papers in academic journals and trade literature.

Appendix 2

Survey Plan

(Not to Scale)


G1
G2
PARK DRIVE


G1
G2
G4
Wall 1.7m high
Post & Wire fence 1.3m high
Brambles
Scrub
Workshop
Greenhouse
Patchetts
Average canopy Level 86.09
Average Canopy Level 101.07
R/Wall 0.5m high
Closed boarded fence 1.8m high
Tarmac/ Gravel
Remains of Wall

Appendix 3

BS 5837(2005) Table 1 – Category Cascade Chart

TREES FOR REMOVAL

Category and Definition	Criteria	Identification on Plan
Category R Those in such a condition that any existing value would be lost within ten years and which should, in the current context, be removed for reasons of sound arboricultural management	• 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 R Category trees (ie 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) eg Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. NOTE: Habitat reinstatement may be appropriate (eg R Category tree used as a bat roost; installation of bat box in nearby tree).	DARK RED

TREES TO BE CONSIDERED FOR RETENTION

Category and Definition	Criteria – Subcategories			Identification on Plan
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Category A **Those of a high quality and value:** no such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (eg the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (eg avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conversation, historical, commemorative or other value (eg veteran trees or wood-pasture	LIGHT GREEN
Category B **Those of moderate quality and value:** those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (ie presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (eg trees of moderate quality within an avenue that includes better A Category specimens) or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C **Those of low quality and value:** currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE: Whilst C Category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem of less than 150mm should be considered for relocation			

Appendix 4

BS 5837(2005) Trees in Relation to Construction:

Successful Integration of Trees into New Development – A Guide to Process

Sylvanus

Arboricultural Consultants Ltd
www.jabooth.co.uk

BS 5837(2005) Trees in Relation to Construction:

Successful Integration of Trees into New Development – A Guide to Process

Arboricultural Stage 1
Tree survey and preliminary constraints advice obtained from Arboriculturalist

- including survey/schedule
- TCP based on:
  - R = Remove
  - A = Retain unless planning considerations over-ride
  - B = Consider retention
  - C = Retain if not restraining proposal
- Consider necessity for Tree Constraints Plan (TCP).

Arboricultural Stage 2
Design review

- evaluation of arboricultural implications of emerging site layout
- design tested against tree protection requirements in relation to the following:
  - Root Protection Area (RPA) (barriers/ground protection and special engineering)
  - space necessary to accommodate anticipated growth of retained trees (setback distances and shading considerations)
  - Protection/remediation in areas identified for new planting
- Arboriculturalist works within design team to develop 'best fit' scheme
- Object is to establish optimal development potential whilst appropriately retaining trees of greatest value.

Arboricultural Stage 3

Preparation of supporting documentation

- Arboricultural Impact Assessment is produced by an Arboriculturalist. This will demonstrate that trees have been properly considered by:
    - an analysis of the tree retention/removal balance
    - information on how retained trees will be protected
- Typical appendices include:
    - Tree survey plan
    - Tree schedule
    - Tree retention/removal plan
    - Tree Protection Plan
    - Arboricultural Method Statement
    - and sometimes Shading analysis

Arboricultural Stage 4

Securing discharge of planning conditions

- Arboriculturalist works with design team to resolve any outstanding details
- Tree friendly solutions and ongoing design review relating to the build process:
    - drainage, services, site infrastructure, construction management
- often includes preparation of detailed Arboricultural Method Statements

(Stage 4 frequently overlaps with Stage 5)

Arboricultural Stage 5

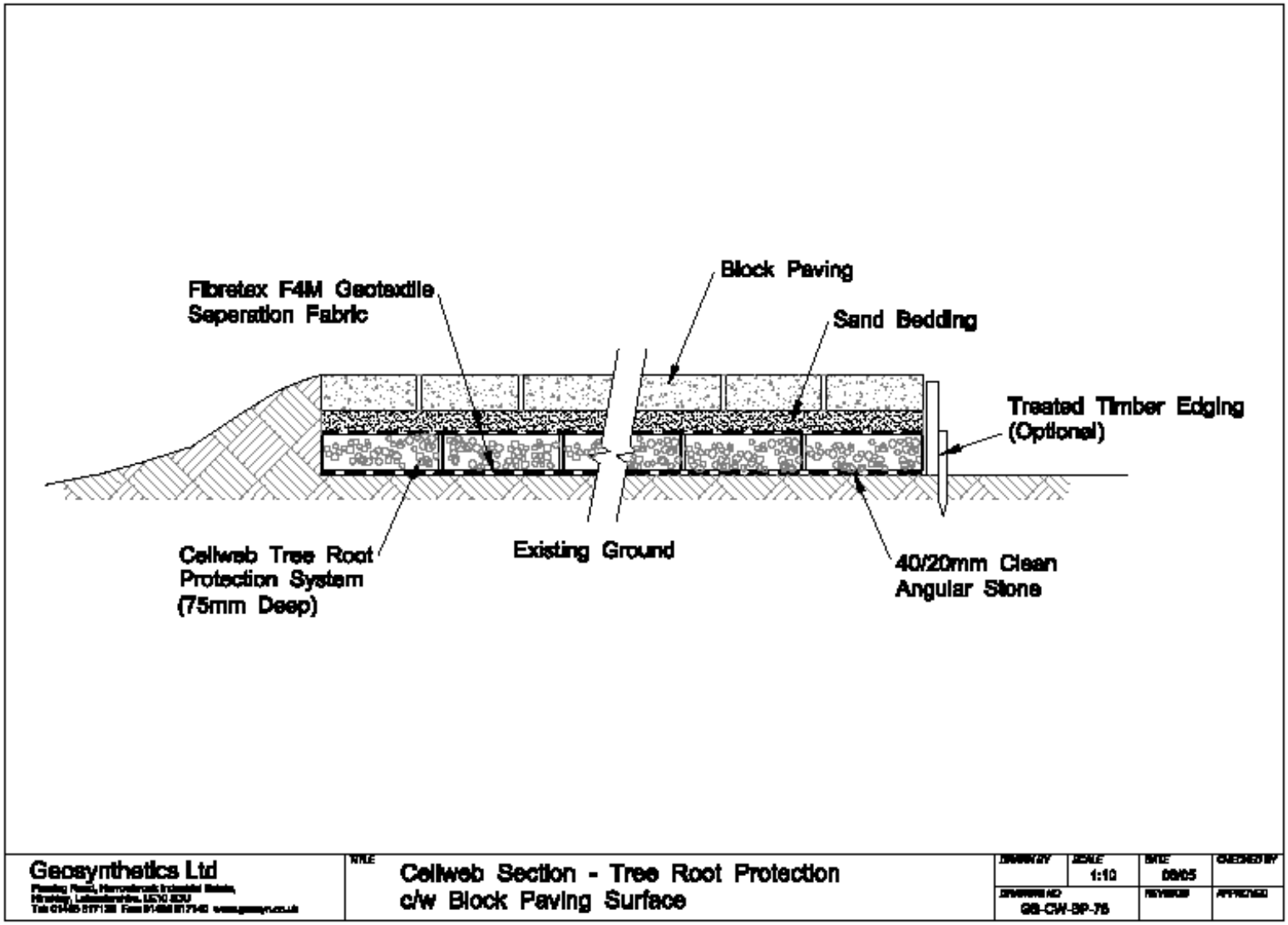
Implementation

- Local Planning Authorities (LPA's) typically employ planning conditions to ensure tree protective barriers remain is place throughout the construction process.
- Arboricultural site monitoring can be offered to LPA to demonstrate trees have been carefully considered. It includes:
    - checking correct alignment and construction of tree protection
    - ensuring compliance with Arboricultural Method Statements
    - responding to emerging questions from Site Agent etc

Appendix 5

‘No-Dig’ Cellular Confinement System

Example Specification


Fibretex F4M Geotextile
Seperation Fabric
Block Paving
Sand Bedding
Treated Timber Edging
(Optional)
Cellweb Tree Root
Protection System
(75mm Deep)
Existing Ground
40/20mm Clean
Angular Stone
Geosynthetics Ltd
TITLE
Cellweb Section - Tree Root Protection
c/w Block Paving Surface
1:10
GS-CW-SP-75