STAGE 1
ARBORICULTURAL REPORT WITH TREE CONSTRAINTS PLAN
&
ARBORICULTURAL IMPACT ASSESSMENT
TO AID IN THE SITE DESIGN / LAYOUT

CONSULTING ARBORIST: **GARY MARSDEN**
FDSc Arb M.Arbor.A

ARBORICULTURAL REPORT FOR:
Brandon Allison
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

LAND OWNER:
Brandon Allison
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

SITE LOCATION:
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

DATE OF SITE INSPECTION: 25th May 2011

DATE OF REPORT COMPLETION: 1st June 2011

ConsultingArboristSociety.com Professional Member A.M.I.U.G Mortgage, Insurance & Homebuyers Tree Reports

Tree Preservation Order

Licensed User

Validation statement for council registration of this report

In accordance with the ***Department for Communities and Local Government circular 02/2008*** and its guidance document ***Validation of Planning Applications,*** this report fulfils the recommended national list criteria for tree survey/arboricultural information. More specifically, it contains the following:

- A full tree survey compliant to the requirements of ***B55837; (2005) Trees in Relation to Construction - Recommendations*** undertaken by a qualified arboriculturist.
- A plan to a suitable scale with a north point and showing tree survey information, retention categorisation and root protection areas, tree height and ultimate tree height.

Summary

I have inspected all the relevant trees that could influence the development of this site and listed there details within this report, a **minimum** root protection zone is indicated around each tree, as no construction would be allowed within this area of any retained tree.

This information can now be used to assist the architect in producing there design while still protecting any retained trees in compliance with *BS 5837:2005 Trees in relation to construction*.

This proposal will result in the loss of 11 trees and 2 groups, all of which would be compensated by a replacement tree planting schedule of which there is plenty of room on site to locate these and should not influence this application. The tree, T4 will need consideration in relation to its proximity to the new footprint and the protection required around this tree

The construction activity and proposed changes may adversely affect further trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement, the development proposal will have no adverse impact on the contribution of trees to local amenity or character. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local amenity well beyond the short term.

Gary Marsden **FDSc Arb M.Arbor.A**

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1.0 Introduction

1.1 **Instruction:**
I am instructed by Brandon Allison via Wighton Jagger Shaw Architects Ltd to inspect the significant trees that could affect the development at 'The Eaves' Pendleton rd, Wiswell, and to provide the following information to aid in the design of the site:

- A schedule of the relevant trees to include basic data and a condition assessment as per section 4.2.6 of BS5837:2005.
- A tree constraints map showing: root protection areas, above ground constraints, crown spreads, retention categories, tree height plus ultimate tree height.

1.2 **Purpose of this report:**
This reports primary purpose is to allow the architect to design relevant buildings / site layout while taking into account any impact this will have on the retained trees on site.

Within this planning process, this report will be available for inspection by people other than tree experts so the information is presented to be helpful to those without a detailed knowledge of the subject.

1.3 **Qualifications and experience:**
I have based this report on my site observations and any provided information and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix 1.

1.4 **Documents and information provided:**
Wighton Jagger Shaw Architects Ltd provided me with copies of the following documents or information:

- Their e-mail of instruction outlining the situation;
- Their email commissioning this report and agreeing to the T&C and cost
- DWG map to plot tree locations in computer tree management software.
- DWG map / drawing of the existing site and proposed building footprint

1.5 **Relevant background information:**
Prior to the site visit, Wighton Jagger Shaw Architects Ltd advised me that:

- The proposal will be to demolish the existing property and construct a new property over the existing footprint and beyond

1.6 **Scope of this report:**
This report is only concerned with the prominent trees within or around the proximity of the site that could influence the development of this site. It takes no account of any trees outside this remit or any building structural issues. It includes a preliminary assessment based on the site visit and any documents provided, listed in 1.4 above
The survey is based upon information that was available at the time of the inspection Further inspections are necessary over time to give a fuller picture of the health of trees.

1.7 **Mapping:**
Site plans showing all tree locations and any relevant details can be found in Appendix 4

1.8 **Justification of work:**
Where management action / tree surgery are recommended, this is based on maximizing the tree's safe useful life expectancy (SULE), given its current situation or the safety of persons and surrounding targets.

2.0 Limitations

2.1 The inspection was carried out from ground level only and relates only to arboricultural aspects. All visual observations and recommendations, relate, to the condition of the trees on the day of the survey. The trees have been assessed with the aid of a Nylon mallet for the purpose of detecting changes in resonance which may indicate that further investigation is required. Any unusual weather conditions, changes in soil, soil levels and changes to surroundings may result in a dramatic change in the trees health.

2.2 Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to a 12-month period. Any alteration to the site and any development proposals could change the current circumstances and may invalidate this report and any recommendations made.

2.3 Trees are dynamic structures that can never be guaranteed 100% safe: even in good condition they can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.

2.4 A lack of recommended work does not imply that a tree is safe and likewise it should not be implied that a tree would be made safe following the completion of any recommended work.

2.5 This report does not consider the structural condition of existing buildings, nor the impact of existing trees on their foundations. If there are concerns over such matters the advice of a structural engineer should be sought.

3.0 Site visit and observations.

3.1 **Site visit:**

- I carried out the unaccompanied site visit on 25th May 2011.
- All my observations were from ground level without detailed investigations and I measured all dimensions unless otherwise indicated.
- I did not have access to trees outside the client's boundaries or on other private properties and have confined any observations to what was visible from within the client's property.
- The weather at the time of inspection was clear, still and dry, with good visibility.

3.2 **Brief site description:**

- Pendleton Rd is located in the rural area of Wiswell.
- The Eaves is on the north western side of the road and surrounded by rural land and isolated properties.
- The property consists of a large house centrally set in a large garden.
- The surrounding topography is relatively flat and the site is not particularly exposed
- Utility services were observed on site: these were a high voltage power line to the north of the property.
- No visual inspections of any services were made below ground level.
- There is no known history on this site either personal nor from a third party

3.3 **Identification and location of the trees:**

I have illustrated the locations of the significant trees (+/- 1m) on the digital maps included in Appendix 4. These plans are for illustrative purposes only and it should not be used for directly scaling measurements. All the relevant information on it is contained within this report and the provided documents.

3.4 **Restrictions:**

Tree Preservation Orders are in place on the site in question
No other known restrictions apply to this site.
As confirmed by:

The land owner: Brandon Allison

The local Arboricultural Officers details are listed below:

David Hewitt,
Arboricultural Planning and Tree Preservation Officer,
Ribble Valley Borough Council
Council Offices,
Church Walk,
Clitheroe,
Lancashire,
BB7 2RA
Tel: 01200 414505,
E-mail: david.hewitt@ribblevalley.gov.uk

A tree preservation order, referred to as a 'TPO', is an order made by a local planning authority ('LPA') in respect of trees or woodlands

The principal effect of a TPO is to prohibit the: Cutting down, uprooting, topping, lopping, wilful damage, or wilful destruction of trees without the LPAs consent. The cutting of roots is potentially damaging and so, in the Secretary of State's view, requires the LPAs consent.

Anyone who, in contravention of a TPO, wilfully damages a tree in a way that is likely to destroy it is guilty of an offence. Anyone found guilty of this offence is liable, if convicted in

the Magistrates Court, to a fine of up to £20,000. In serious cases a person may be committed for trial in the Crown Court and, if convicted, is liable to an unlimited fine.

It is strongly advised that prior to undertaking work to tree/s an up to date check is carried out to establish if a TPO is in force on the tree/s.

The information in this report is correct at the time of writing but it is possible that conditions could have been applied to the tree/s after this report was written.

3.5 **Collection of basic data:**

I inspected each tree and have indicated the numbering on the site map enclosed in Appendix 4. I identified obvious hedges and groups where appropriate. For each individual tree, group or hedge, I collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. I have recorded this information in the tree schedule included as Appendix 5.

I stress that my inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. This data collection is fully compliant with the BS 5837 recommendations set out in subsection 4.2 6 of the standard.

4.0 Tree Categorisation

4.0 **Guidance:**
I have applied the following principals to categorise the tree in accordance with *BS 5837 (2005): Trees in Relation to Construction.*

The category for the tree is ascertained by following the guidelines in the BS 5837 (2005) cascade chart for tree quality assessment included with the TCP tree schedule in Appendix 6. A brief summary of each category is outlined as follows:

4.1 **Category 'A' trees:**
This category signifies trees that are of a high quality and value. Occasionally a veteran tree, although not in the best condition may warrant this category because of its wildlife and cultural value. It is essential to retain these trees. The design of the proposed development should take into account the retention of category 'A' trees.

4.2 **Category 'B' trees:**
This category signifies trees that are of a moderate quality and value. It is important to retain these trees. The design of the proposed development, where feasibly possible, should take into account the retention of category 'B' trees. A design layout that suggests the removal of category 'B' trees has an increased risk of planning refusal.

4.3 **Category 'C' trees:**
This category signifies trees that are of low quality and value. They are generally trees that could remain and are expected to have a safe useful life expectancy of between 10 and 20 years if no development were to occur. However, because of their generally low quality it would not be a great loss if they had to be removed if they were a significant constraint to the design or construction process of the proposed development. Particular attention is drawn to the phrase "significant constraint".

4.4 **Category 'R' trees:**
This category signifies trees that are in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

5.0 Root Protection Areas (RPAs)

5.1 **Why do we need root protection areas?**
Approximately eighty percent of a tree's roots are in the top 600 mm of soil. Therefore any changes in this vital environment including: ground level, soil compaction, physical damage to roots, moisture or levels of contaminants can have a dramatic affect on the health of a tree. At deeper strata alterations in water table and routing of services can cause detrimental, long term, effects.

5.2 **Method of calculations:**
The area of roots that need to be protected around a tree to try and ensure that it does not suffer damage during the construction process is called the Root Protection Area (RPA)

The RPA is calculated using a formula based upon the diameter of the tree at 1.5 metres high for single stem trees and near ground level for multi-stem trees. At this stage it is generally represented by a circle centred on the trees stem. A small percentage lost from the outside of the circle may be tolerated by the tree or offset in another direction. However, where there are significant existing constraints additional root loss in close proximity near to a tree's stem is likely to have a detrimental effect on the trees health or even complete failure of the root plate.

5.3 **How to use RPAs:**
The RPAs for the trees in question are indicated in Appendix 5. At this point the RPA is only indicative and intended to assist in preparing the design layout.

5.4 **Optimum RPA calculation:**
Within the RPA table in appendix 5 is a column headed *Optimum RPA*; this calculation is derived from the minimum RPA + an extra 20%, this total gives a RPA that exceeds the recommendations set out in BS 5837 2005: Trees in relation to construction.

If the site conditions prevail and this RPA can be used, this it will reduce any conflict with the tree and minimise the chance of rejection / conflict with the planning application / Local Planning Authority.

6.0 Appraisal

6.1 **Relevant references:**

- BS 5837:2005 Trees in relation to construction
- NJUG Guidance Notes for the planning, installation and maintenance of utility apparatus in proximity to trees.
- Arboricultural Practice Note (APN) 12 – Through the trees to Development

6.2 **Overview:**

- There are 3 trees recommended for removal (R) with particular reference to T7.
- There are 2 category 'A' trees that should be retained as part of the development due to the benefits they provide to the landscape feature.
- There are 2 category 'B' trees that *should* be retained if feasibly possible as part of the development due to the benefits they provide to the landscape feature
- There are 12 category 'C' trees that should be retained if possible as part of the development site although removal is an option if development in this area is needed.
- There are 5 Groups rated C2, these also should be retained if possible but removal is an option if development in this area is needed.

6.3 **Category R trees (Removal):**
There are 3 trees recommended for removal these are; T3, T7, and T10. The reasons for removal are due to poor form, suppression or dieback within the tree, details for each tree can be found in the survey data.

6.4 **Category A trees:**
There are 2 trees that should be retained due to the physiological and structural strengths of the trees and the contribution to the amenity value that they make now and there potential in the future.

6.5 **Category B trees:**
There are 2 trees that should be retained if feasibly possible in line with the proposed development. Each tree should be assessed as to the impact it has on the development and recommendations drawn from this as to whether removal is an option.

6.6 **Category C trees:**
There are 12 trees that should be retained but removal is an option if the tree / trees impinge on the proposed development.

6.7 **Groups:**
There are 5 groups of trees present on site of these only Ga and Gb would affect the proposed development, with both of these being replaceable with new planting.

6.8 **Conflict:**
There is a potential for conflict with the tres on this site but with careful planning and suitable tree protection and monitoring a design and build process should be feasible.

6.9 **Tree works:**
The management options noted in the survey data should be followed so to keep a maintained tree stock on and around this development site, particularly giving clearance from properties and over any adopted roads or footpaths.

7.0 Arboricultural Implications Assessment

7.1 **Summary of the impact on trees:**

I have assessed the impact of the proposal on trees by the extent of disturbance in and around the RPAs and the current and future canopy height and spread. All the trees that may be affected by the development proposal are listed in table 1, this list is to be used as guidance due to the final site layout / position in relation to the trees and method of construction has not been finalised. This list is my recommendation of trees to be retained / removed to allow the construction to proceed and retain / protect suitable trees on site.

Table 1: Summary of trees that may be affected by the development

Impact	Reason	Important trees		Unimportant trees	
		A	B	C	R
Trees to be removed	Building construction, new surfacing, tree quality and / or, proximity		T6	T5, T8, T9, T11, T12, T113, T14, Ga, Gb	T3, T7, T9,
Trees that may be adversely affected by the tree canopy or through disturbance to RPAs	Removal of existing surfacing / structures / landscaping and or installation of new surfacing / structures / landscaping	T1, T4			

7.2 **Category A and B trees to be removed:**

- There are no category A trees located on or immediately adjacent to the site that are to be removed.
- Only one category B tree (T6) will be removed. Although this single individual tree has been classified as a high category tree it must be stressed that this categorization is marginal due to its relatively poor canopy framework. Its removal may be noticeable in the immediate vicinity in the short term but there will be no significant impact on local amenity character in the wider setting in the medium to long terms. Furthermore its removal will provide an opportunity to establish a new tree within this location.

7.3 **Category A and B trees that may be adversely affected through RPA disturbance:**

- There are 2 category A trees located on or immediately adjacent to the site that may be adversely affected through RPA disturbance with the Lime T4 being the one with the greatest concern due to the close proximity to the proposed development footprint and the possible need for access to the front of the development over the existing drive / through the RPA.
- No category B trees located on or immediately adjacent to the site that will be adversely affected through RPA disturbance.

7.4 **Category C trees to be lost:**

- There are 7 trees and 2 groups to be removed that are category C, this is because the trees fall within the development footprint and are considered to have limited potential for long term retention. As such it is considered to be unworthy of influencing any layout. I believe it is not important in the overall planning context and its loss should not influence the determination of this application.

7.5 **Retained category C trees that may be adversely affected through RPA disturbance:**

- There are no category C trees at present located on or immediately adjacent to the site that will be adversely affected through RPA disturbance.

7.6 **Presence of Tree Preservation Orders (TPO) or Conservation Area Designation:**
There are Tree Preservation Orders in place on the trees within the proposed development site at the time of writing this report.

7.7 **Affects of new buildings on amenity value on or near the site:**
The location of the new building will have limited affect on the amenity value of the trees remaining on site due to the buildings location and the prominent trees being to the front of the development thus there is no detrimental effect to their amenity value.

Felling of the other trees as proposed within the work schedule would be of insignificant loss to the general amenity value of the site as viewed from offsite. This is due to their short remaining life expectancy and their position.

The overall loss to the amenity value of the site will be insignificant due to their location.

7.8 **Above and below ground constraints:**
No construction of foundations or the installations of services are to take place within any Root Protection Area (RPA) at the time of writing this report

7.9 **Construction processes of the proposed development:**
Development processes that lead to soil compaction in tree rooting zones and physical damage to trees can adversely affect long-term tree health. This can lead to unnecessary tree loss if not controlled properly on site during the demolition of a building and then the construction phases that follow.

No access to the RPAs of any retained tree will be permitted before or during construction activity. Therefore there is no risk of machinery causing damage to trunks and low branches.

The processes of construction are highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report are adhered to at all times by the contractors e.g. the positioning of a stout fence between the retained trees construction activities is placed prior to commencement of works and remains intact and in position throughout the duration of the construction activities.

7.10 **Modifications proposed to accommodate trees:**
The siting of the dwellings may need to be modified to accommodate the RPA of T4

7.11 **Infrastructure requirements – highway visibility, lighting, CCTV, services etc:**
The installation of services within the rooting zones of trees can have a large detrimental impact on the long-term survival of retained trees leading to their unnecessary loss or root failure in high winds. No services are to be installed within any tree RPA.

Undisclosed sighting of above ground services, CCTV cameras, electrical sub-stations, refuse stores, lighting and other infrastructure requirements can lead to unnecessary pruning of tree crowns or root loss during or post development. There are no such developments planned to take place adjacent or within the RPA of any retained trees.

7.12 **Mitigating tree loss / new planting:**
Some tree loss will take place as a result of the development of the site. A landscape plan will be drawn up. This will incorporate any new planting of trees sympathetic to the environment and to the benefit of the new development and the surrounding landscape.

7.13 **Proximity of trees to structures:**
With the impact of trees on buildings, and vice versa, allowances for future growth have all been considered in the sighting of the new dwellings. Tree size, future growth, light / shading, leaf and fruit nuisance etc have received due attention and are not considered to be an issue with the footprint proposal.

8.0 Proposals to mitigate any impact

8.1 **Protection of retained trees:**
The successful retention of trees depends on the protection and the administrative procedures to ensure those protective measures remain in place whilst there is an unacceptable risk of damage. An effective means of doing this is through an arboricultural method statement that can be specifically referred to in a planning condition. An arboricultural method statement for this site has been proposed once the development has become more finalised.

8.2 **New planting:**
In the context of the loss of trees, a comprehensive new landscaping scheme is proposed and to be established in sustainable and prominent locations throughout the site. Any future selection of species and location should remain provisional until all relevant parties had been fully consulted. However, these new trees should be selected on their potential to reach a significant height without excessive inconvenience and be sustainable into the long term, significantly improving the potential of the site to contribute to local amenity and character. Numbers and locations have not been established until the final design for the property is known

8.3 **Summary of the impact on local amenity:**
This proposal will result in the loss of 11 trees and 2 groups, all of which would be compensated by a replacement tree planting schedule of which there is plenty of room on site to locate these and should not influence this application. The tree, T4 will need consideration in relation to its proximity to the new footprint and the protection required around this tree

The construction activity and proposed changes may adversely affect further trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement, the development proposal will have no adverse impact on the contribution of trees to local amenity or character. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local amenity well beyond the short term.

9.0 Conclusions

9.1 **Conclusion:**

On the basis of the above information and discussions, I summarise my conclusions as follows:-

- The condition of the tree stock on site is in generally good condition.
- The trees recommended for removal are not in a dangerous condition and are recommended for removal in a development context due to the safe useful life expectancy being <10 years.
- If all considerations are taken on board in relation to tree protection and retention there is no reason why this development and replanting won't benefit the area for future generations to come.

10.0 Other Considerations

10.1 **Trees subject to statutory controls:**
If any trees are covered by a tree preservation order or located in a conservation area, it will be necessary to consult the council before any pruning works other than certain exemptions can be carried out. The works specified above are necessary for reasonable management and should be acceptable to the council. However, tree owners should appreciate that they may take an alternative point of view and have the option to refuse consent.

10.2 **Trees outside the property boundaries:**
Any trees that are located in adjacent properties are effectively out of the control of the client / land owner It will not be possible to easily carry out any recommended works without the full co-operation of the tree owners. The implications of non cooperation require legal interpretation and are beyond the scope of this report. By common law, branches from trees on adjacent properties extending over boundaries can be pruned back to the boundary line without the permission of the owners. However, the material belongs to the tree owner and the same guidance on statutory controls applies as discussed in 8.1 above.

10.3 **Development within the rooting area:**
The zone of influence has been determined using the calculation outlined in Table 2, of section 5.2.2 of BS 5837: 2005 Trees in relation to construction – Recommendations. This calculation utilises the diameter of the trunk, at a height of 1.5m from the surrounding ground level; and calculates the root protection area (RPA) by multiplying the diameter by a value of 12; the result is then used to calculate the total area (m^2) of the RPA. The calculations are illustrated in the tree survey data in Appendix 5

10.4 **Construction Exclusion Zone:**
The values indicate the area of soil around the base of the tree to be retained undisturbed This area should be protected with vertical barriers and considered sacrosanct. Signs should be erected on the fencing to indicate that the area is a Construction Exclusion Zone (CEZ).

10.5 **Arboricultural Implication Assessment:**
A detailed Arboricultural Implication Assessment (AIA), outlining the impact of proposal on trees by the extent of disturbance in RPAs and the encroachment of structures is available as a further commission. This process should be undertaken once the final decision has been made on the proposed structure.

10.6 **Arboricultural Method Statement:**
A detailed Arboricultural Method Statement (AMS), outlining the different stages and progression of construction is available as a further commission. This process should be undertaken once the final decision has been made on the proposed structure

10.7 **Implementation of works:**
All tree works should be carried out to BS 3998 *Recommendations for Tree Work* as modified by more recent research It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association. Their Register of Contractors is available free from:

Arboricultural Association
Ullenwood Court,
Ullenwood, Cheltenham,
Gloucestershire,
GL53 9QS,
England.
Telephone: 01242 522 152
Website: www.trees.org.uk/contractors.htm
E-mail: admin@trees.org.uk

10.8 **Local Arboricultural Contractors:** If requested I can provide a list of reputable local arboricultural contractors that have carried out work on previous projects.

10.9 **Safety:** Tree works can be a hazardous profession, so it is important that all operatives have the necessary and relevant training, health and safety policy and valid forms of insurance.

10.10 **Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

10.11 **Future considerations:** Any remaining trees should be inspected on a regular basis by a qualified arboricultural consultant.

10.12 **Replanting:** Any trees on this site that are protected by a preservation order and are being recommended for removal, the appropriate replanting of replacement trees will be needed as a condition of the council granting permission for these trees being felled. This should be incorporated into the landscaping plans at the design stage and followed through after building work is completed.

9.0 Bibliography / References

BS 5837: 2005 Trees in relation to construction – BSI Publication

BS 3998: 2010 Recommendations for tree work – BSI Publication

National Joint Utilities Group (NJUG) Guidance Notes for the planning, installation and maintenance of utility apparatus in proximity to trees – issue 2

Arboricultural Practice Note (APN) 12 – Through the trees to Development – Derek Patch and Ben Holding – Arboricultural Advisory and Information Service

Principles of Tree Hazard Assessment and Management – David Lonsdale

The Body Language of Trees – Claus Mattheck and Helge Breoloer

Diagnosis of Ill Health in Trees R.G. Strouts and T.G. Winter

A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas – Nelda P Matheny and James R. Clark

Field Guide Trees – Allan Mitchell

Trees in Britian, Europe and North America – Rodger Phillips

Manual of Wood Decays In Trees – K. Weber and C. Mattheck

APPENDIX 1

Brief qualifications and experience of Gary Marsden:

Qualifications:

- National Certificate in Arboriculture – August 1998
- The Leonard Cheshire Home Award , Practical Award – September 1998
- NVQ in Amenity Horticulture Level 1 – November 2003
- Foundation Degree In Science - Arboriculture - June 2005
- BTEC Higher National Diploma in Arboriculture – June 2005

Practical experience:

After qualifying at NC level in arboriculture I gained full time employment with Blackburn with Darwen Borough Council as an Arborist / Climber (September 1998) where I gained a wide range of practical Arboricultural experience ranging from pruning, dismantling and planting.

In January 2004 I was promoted to Team Leader Arborist were I developed my skills in Arboriculture, leadership, organisation and prioritising workloads.

In August 2005 I was promoted to 'Arboricultural Officer' this job involves:

- Health and Safety of all Arboricultural aspects
- Inspection and scheduling of tree complaints
- Tree surveys and report writing
- Staff management

In July 2008 I set up my own tree consultancy company – GM Tree Consultants – which I am constantly developing and evolving.

Continuing professional development:

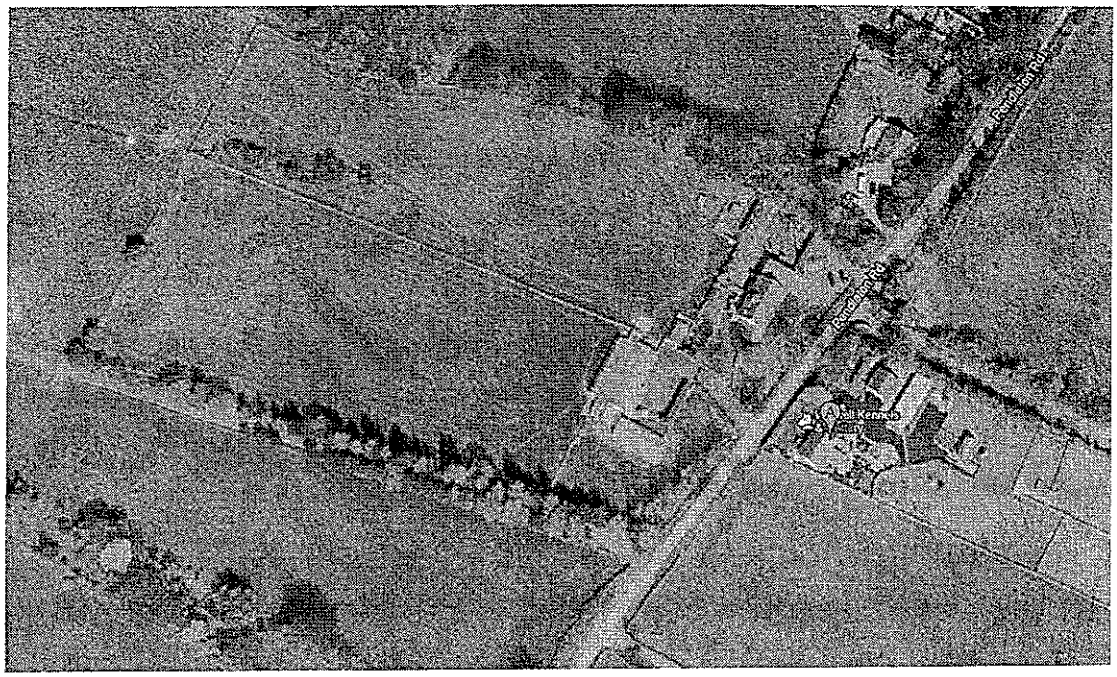
As a conscious effort to stay in touch with the progression in modern techniques and practices in the arboricultural industry, I attend seminars, receive regular arboricultural literature and maintain membership of professional bodies, examples of which are listed below:

- Arboricultural Association Professional Member since November 2006
- Professional Member of the Consulting Arborist Society since May 2009
- Quantified Tree Risk Assessment licensed user since October 2008
- Attendance of Arboricultural Association annual conferences
- Attendance of specialist short courses in relation to specific fields in arboriculture including: Tree Preservation Orders, Subsidence and mortgage reports, Planning legislation and Tree inspection methods and skills.

A detailed breakdown of qualifications and continued professional development training is available; please contact me directly for this information if requested

APPENDIX 2

Site Location aerial photo:



APPENDIX 3

Tree survey Index

Tree Locations:
This has been measured using a laser distancing device with a digital compass and plotted on the site plan using tree management software. The accuracy given for the tree stem location is ±1m.

Tree Number:
Each surveyed feature is assigned an individual number:
e.g. – Tree A072014013 is made up of:

- 'A' –this represents the tablet pc that was used to record the data
- '07' – this is the month that the inspection was recorded
- '20' – the day of the month when the tree was recorded
- '14' – the hour in the day when the tree was recorded
- '013' – the tree number recorded in that hour of the day (when the hour changes this resets to 001)

Alternatively; each surveyed feature is assigned a number prefixed by a 'T' for individual trees, 'G' for groups of trees and 'H' for hedgerows. It is used to locate the tree in the data survey and the relevant position on the plan.

Species:
The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. The botanical name is followed by the abbreviation sp if only the genus is known.

Height:
Overall height of tree recorded in meters. Height is recorded using a clinometer.

Potential Height of tree:
The expected mature height of the tree

Number of stems:
The number of main stems of each individual tree.

Height of clear stem:
Height in metres of crown clearance above adjacent ground level at the base of the tree (to inform on ground clearance, crown stem ratio and shading).

Stem Diameter:
These figures relate to stem diameter in millimetres at 1.5m above ground level (on sloping ground, taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees. This is accurately measured using a girthing tape.

Root Protection Area:
This is the minimum area in m^2 which should be left undisturbed around each retained tree.

Branch Spread:
This is measured in meters taken at the four cardinal points to derive an accurate representation of the crown.

Age Class:
Described as young, semi mature, mature, over-mature, veteran.

Physiological Condition:
Described as good, fair, poor, dead and notes as needed

Structural Condition:
Described as good, fair, poor, dead and notes as needed

Preliminary management recommendations:
Practical arboricultural operations that are suggested and described as needed.

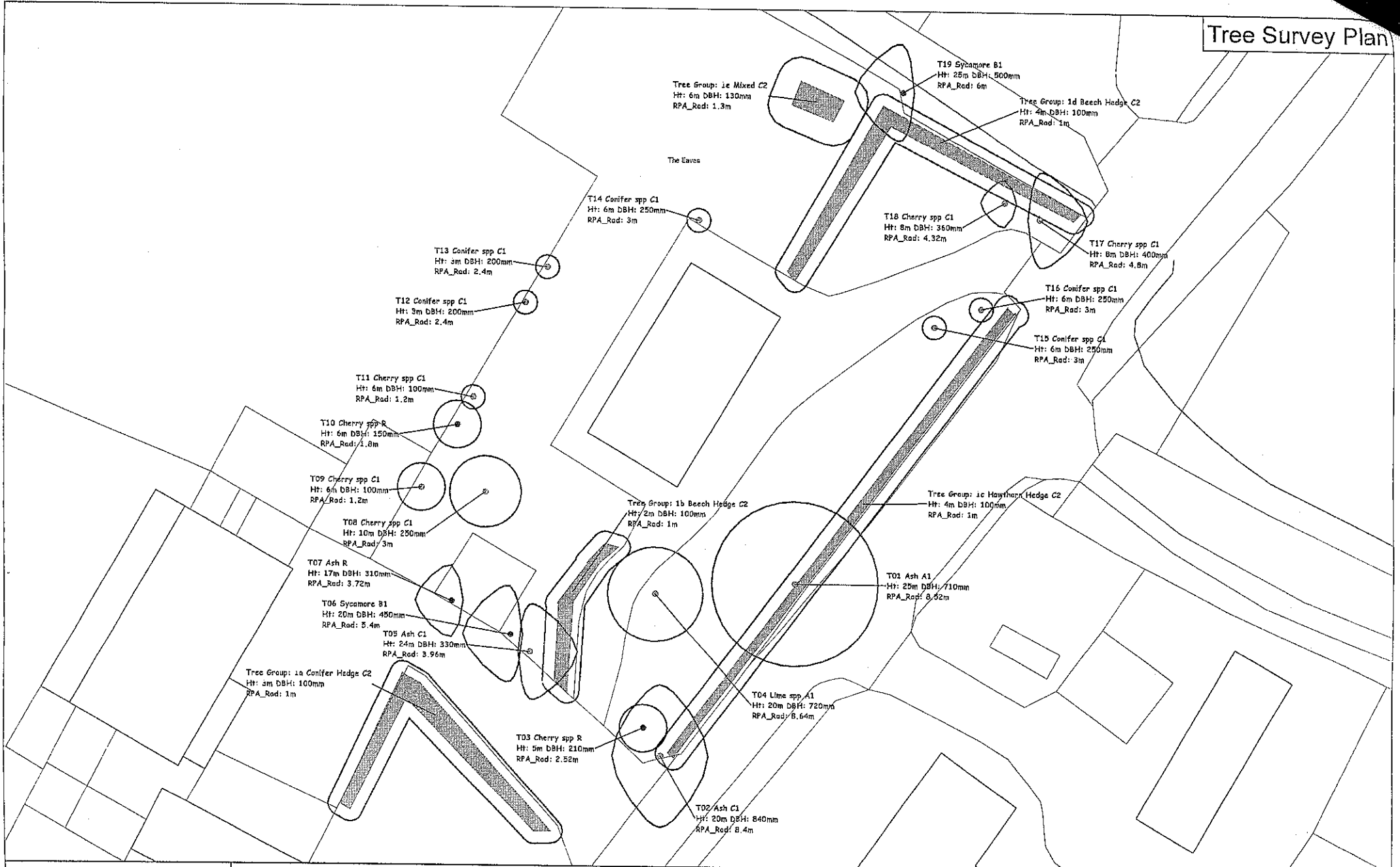
Remaining Contribution:
Estimated remaining contribution in years: e.g. less than 10, 10-20, 20-40, more than 40. This is based upon Jeremy Barrels" system of SULE (Safe Useful Life Expectancy).

Tree Retention Category Grading:
R or A to C category grading as referenced from BS 5837:2005 Trees in relation to construction (see Table 1 in appendix 6)

APPENDIX 4

Inserted site maps showing tree locations and all other relevant details:

Tree Survey Plan



Site: The Eaves, Pendleton Road
Job Ref: 0178

0 6 12 Metres

Date: 30th May 2011
Scale (@ A2): 1:200

BS5837 Tree Retention Category

- Category A *Desirable to retain in long term*
- Category B *May be desirable to retain in medium term*
- Category C *Could retain in short term*
- Category R *Unsuitable for retention. Remove*

BS5837 Tree Retention Value

1 - Mainly Arboricultural Value
2 - Mainly Landscape Value
3 - Mainly Cultural Value (inc. conservation value)

Tree Key

Canopy Spread

Tree Label Key

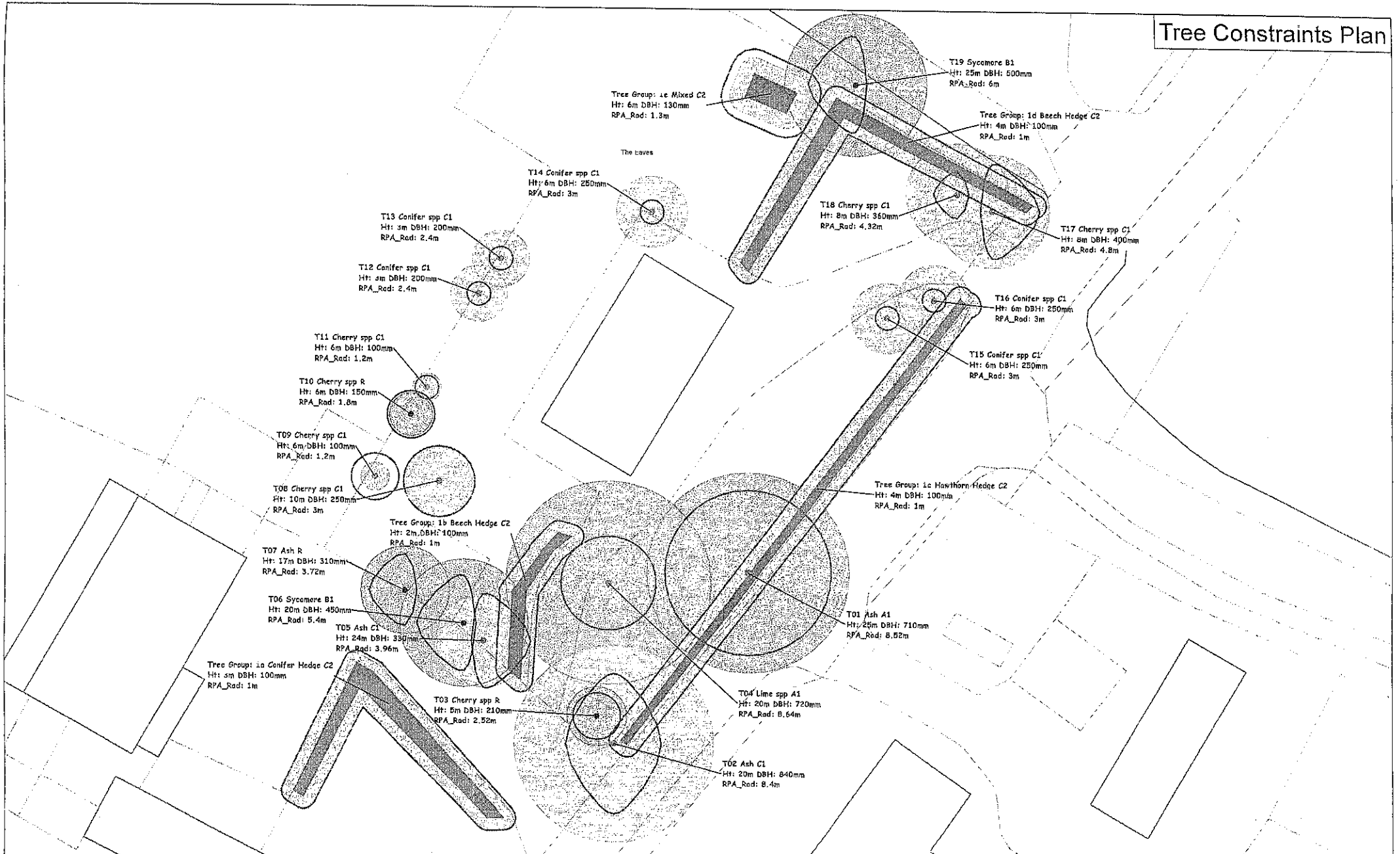
Tree Ref Number | species | BS Retention Category & Value

T06 Sycamore B1
Ht: 12m DBH: 420mm

Tree Height | Tree Diameter

N

Tree Constraints Plan



Site: The Eaves, Pendleton Road
Job Ref: 0178

0 6 12 Metres

Date: 30th May 2011
Scale (@ A2): 1:200

BS5837 Tree Retention Category

- Category A *Desirable to retain in long term*
- Category B *May be desirable to retain in medium term*
- Category C *Could retain in short term*
- Category R *Unsuitable for retention. Remove*

BS5837 Tree Retention Value

1 - Mainly Arboricultural Value
2 - Mainly Landscape Value
3 - Mainly Cultural Value (inc. conservation value)

Tree Key

Root Protection Area Extent — Canopy Spread

Tree Label Key

Tree Ref Number — Species — BS Retention Category & Value

T06 — Sycamore — B1

Ht: 12m — DBH: 420mm — RPA_Rad: 10.6m

Tree Height — Tree Diameter — Radius of Root Protection Area

N

APPENDIX 5

Tree survey data inserted including the calculations for the root protection zones:

GM TREE CONSULTANTS BS:5837 TREE SURVEY DATA

TREE SPECIFICS																		
Tree number	Species (common)	Number of stems	Trunk dia. @ 1.5m (mm)	Height (M)	Potential height of SPECIES (m)	Height of clear stem (meters)	C/S NORTH (m)	C/S EAST (m)	C/S SOUTH (m)	C/S WEST (m)	AGE CLASS	Physiological Condition		Structural Condition		Preliminary management recommendations to ensure SULE is at least 10 years	REMAINING CONTRIBUTION	TREE QUALITY ASSESSMENT	
												Abr.	comments (- and +)	Abr.	comments (- and +)			CAT.	VALUE
1	ash	1	710	25	30.0	5	7	7	7	7	m	good	sparce canopy but consistant for species at time of survey	good	old limb tear at 4m with good occlusion, no extencive decay - slight deadwood in the crown	monitor annually for signs of decline	>40	a	1
2	ash	2	840	20	30.0	6	6	4	6	4	m	fair	tree appears stressed with reduced canopy foliage	fair	die back in the cambium at the base of the tree on the NE stem - dieback within the crown	monitor annually for signs of decline	10>20	c	1
3	cherry	1	210	5	18.0	1	2	2	2	2	y	poor	dead tree	poor	dead but not unstable	fell	<10		#
4	lime	1	720	20	30.0	3	4	4	4	4	m	good	good canopy and leaf cover	good	no issues	no work needed	>40	a	1
5	ash	1	330	24	30.0	8	4	4	4	1	sm	good	no issues	good	no issues	no work needed	20>40	c	1
6	sycamore	1	450	20	30.0	6	4	1	4	4	sm	good	no issues	good	suppresed by T6 leading to a non uniform canopy	no work needed	>40	b	1
7	ash	1	310	17	30.0	5	3	1	3	3	sm	poor	die back within the crown deadwood present	poor	rooting area compromised with basal area compromised by wall and concrete foundation	fell	<10		#
8	cherry	1	250	10	18.0	5	3	3	3	3	sm	good	no issues	good	no issues	no work needed	20>40	c	1
9	cherry	1	100	6	18.0	2	2	2	2	2	y	good	no issues	good	no issues	no work needed	20>40	c	1
10	cherry	1	150	6	18.0	2	2	2	2	2	y	fair	slight deadwood	poor	decay at the base of the tree	fell	<10		#
11	cherry	1	100	6	18.0	2	1	1	1	1	y	good	no issues	good	no issues	no work needed	10>20	c	1
12	conifer	1	200	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	1
13	conifer	1	200	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	1
14	conifer	1	250	6	30.0	0	1	1	1	1	v	good	no issues	good	no issues	no work needed	>40	c	1
15	conifer	1	250	6	30.0	0	1	1	1	1	v	good	no issues	good	starting to encroch onto power line	reduce to give minimum of 2m clearance	>40	c	1
16	conifer	1	250	6	30.0	0	1	1	1	1	v	good	no issues	good	starting to encroch onto power line	reduce to give minimum of 2m clearance	>40	c	1
17	cherry	1	400	8	18.0	2	4	4	4	1	sm	fair	no issues	poor	hard crown reduction back to poor pruning points	monitor annually for signs of decline	10>20	c	1
18	cherry	1	360	8	18.0	2	2	1	2	2	sm	fair	no issues	poor	hard crown reduction back to poor pruning points	monitor annually for signs of decline	10>20	c	1
19	sycamore	1	500	25	30.0	18	4	1	4	4	m	good	no issues	fair	has been pruned to give clearance for utility power line	no work needed	20>40	b	1

GM TREE CONSULTANTS BS:5837 TREE SURVEY DATA

TREE SPECIFICS

Tree number	Species (common)	Number of stems	Trunk dia. @ 1.5m (mm)	Height (M)	Potential height of SPECIES (m)	Height of clear stem (meters)	C/S NORTH (m)	C/S EAST (m)	C/S SOUTH (m)	C/S WEST (m)	AGE CLASS	Physiological Condition		Structural Condition		Preliminary management recommendations to ensure SULE is at least 10 years	REMAINING CONTRIBUTION	TREE QUALITY ASSESSMENT	
												Abr.	comments (- and +)	Abr.	comments (- and +)			CAT.	VALUE
Ga	hedge - conifer	<20	100	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gb	hedge - beech	>20	100	2	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gc	hedge - hawthorn	<50	100	4	5.5	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gd	hedge - beech	<50	100	4	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Ge	mixed	5	130	6	9.0	2	2	2	2	2	y	good	no issues	good	no issues	no work needed	10>20	c	2

GM TREE CONSULTANTS BS:5837 RPA DATA

*Calculations giving **MINIMUM** root protection area needed around each tree on site - NOTE - the number of stems denotes which set of calculations are used - trees with one stem use the "single stem results" all other trees use the "multi stem results"

** if the **'optimum'** calculation is used then you will be exceeding the minimum requirements recommended by BS 5837 - therefore minimising any impact to the tree and reducing the chance of rejection / conflict with the Local Planning Authority.

***The tree maps produced use the **minimum** calculations / dimensions

Tree Data				Single Stemmed Tree						Multi-Stemmed Trees					
Tree Number	Species	Number of stems	Stem Diameter @ 1.5m or above root flair (mm)	Optimum MIN Circle Radius if available (m) (x12 + 20%)	Min Circle Radius (m) (x12)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)	Optimum MIN Circle Radius if available (m) (X10 + 20%)	Min Circle Radius (m) (X10)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)
1	ash	1	710	10.22	8.52	72.59	228.05	15.10	1.70						
2	ash	2	840							10.08	8.40	70.56	221.67	14.89	1.68
3	cherry	1	210	3.02	2.52	6.35	19.95	4.47	0.50						
4	lime	1	720	10.37	8.64	74.65	234.52	15.31	1.73						
5	ash	1	330	4.75	3.96	15.68	49.27	7.02	0.79						
6	sycamore	1	450	6.48	5.40	29.16	91.61	9.57	1.08						
7	ash	1	310	4.46	3.72	13.84	43.47	6.59	0.74						
8	cherry	1	250	3.60	3.00	9.00	28.27	5.32	0.60						
9	cherry	1	100	1.44	1.20	1.44	4.52	2.13	0.24						
10	cherry	1	150	2.16	1.80	3.24	10.18	3.19	0.36						
11	cherry	1	100	1.44	1.20	1.44	4.52	2.13	0.24						
12	conifer	1	200	2.88	2.40	5.76	18.10	4.25	0.48						
13	conifer	1	200	2.88	2.40	5.76	18.10	4.25	0.48						
14	conifer	1	250	3.60	3.00	9.00	28.27	5.32	0.60						
15	conifer	1	250	3.60	3.00	9.00	28.27	5.32	0.60						
16	conifer	1	250	3.60	3.00	9.00	28.27	5.32	0.60						

GM TREE CONSULTANTS BS:5837 RPA DATA

* Calculations giving **MINIMUM** root protection area needed around each tree on site - NOTE - the number of stems denotes which set of calculations are used - trees with one stem use the "single stem results" all other trees use the "multi stem results"

** if the **'optimum'** calculation is used then you will be exceeding the minimum requirements recommended by BS 5837 - therefore minimising any impact to the tree and reducing the chance of rejection / conflict with the Local Planning Authority

*** The tree maps produced use the **minimum** calculations / dimensions

Tree Data				Single Stemmed Tree						Multi-Stemmed Trees					
Tree Number	Species	Number of stems	Stem Diameter @ 1.5m or above root flair (mm)	Optimum MIN Circle Radius if available (m) - (x12 +20%)	Min Circle Radius (m) (x12)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)	Optimum MIN Circle Radius if available (m) - (X10 + 20%)	Min Circle Radius (m) (X10)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)
17	cherry	1	400	5.76	4.80	23.04	72.38	8.51	0.96						
18	cherry	1	360	5.18	4.32	18.66	58.63	7.66	0.86						
19	sycamore	1	500	7.20	6.00	36.00	113.10	10.63	1.20						
Ga	hedge - conifer	<20	100							1.20	1.00	1.00	3.14	1.77	0.20
Gb	hedge - beech	<20	100							1.20	1.00	1.00	3.14	1.77	0.20
Gc	hedge - hawthorn	<50	100							1.20	1.00	1.00	3.14	1.77	0.20
Gd	hedge - beech	<50	100							1.20	1.00	1.00	3.14	1.77	0.20
Ge	mixed	5	130							1.56	1.30	1.69	5.31	2.30	0.26

APPENDIX 6

Cascade chart showing tree retention categories exerted from:
BS 5837 (2005) trees in relation to construction

Table 1 — Cascade chart for tree quality assessment

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 10 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 (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).	RGB code: 127-000-000 AutoCAD 246

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 high quality and value: in 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 (e.g. 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 (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**LIGHT GREEN** RGB code: 000-255-000 AutoCAD 90
Category B Those trees 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 (e.g. 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 (e.g. 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	RGB code: 000-000-255 AutoCAD 170
Category C Those trees 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 150 mm	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** RGB code: 91-91-91 AutoCAD 252
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

APPENDIX 7

Table showing the Ultimate Tree Height of commonly found tree species:

Tree "type"	Common name of tree species	Ultimate height of tree
Deciduous	Alder	19m
Deciduous	Ash	30m
Deciduous	Apple (all *malus* spp)	6 – 9m
Deciduous	Beech	30m
Deciduous	Birch	12 – 18m
Deciduous	Elm	30m
Deciduous	Elderberry	10m
Deciduous	Hornbeam	19m
Deciduous	Hawthorn	5.5m
Deciduous	Hazel	6m
Evergreen	Holly	25m
Deciduous	Horse chestnut	30m
Deciduous	Laburnum	6 – 9m
Evergreen	Larch	30 – 42m
Evergreen	Lawson Cypress	60m
Evergreen	Leyland Cypress	30m
Deciduous	London Plane	30m
Deciduous	Lime (small)	30m
Deciduous	Lime (common)	39m
Deciduous	Lime (Large)	41m
Deciduous	Norway Maple	18 – 21m
Evergreen	Norway Spruce	36m
Deciduous	Oak spp	30m
Deciduous	Poplar	30m
Deciduous	Robinia	25m
Deciduous	Rowan	15m
Deciduous	Sweet chestnut	30m
Deciduous	Sycamore	30m
Evergreen	Scots Pine	36m
Deciduous	Swedish Whitebeam	10m
Deciduous	Tulip Tree	45 – 58m
Deciduous	Whitebeam	25m
Deciduous	Wild Cherry	18m
Deciduous	White willow	25m
Deciduous	Walnut	25 – 30m

Above is a list of the more common trees found and their ultimate height at maturity

All information is taken from 'Trees in Britain Europe and North America' by Rodger Phillips ISBN 0 330 25480 4

APPENDIX 8

Copy of e-mail from Local Arboricultural / Planning Officer:

*** I have emailed the local arboricultural officer requesting information as to the status of the trees on site in relation to tree preservation orders, Conservation Areas and any other known constraints. As yet I have had no response and due to the deadline for submitting this report I can therefore not confirm or deny any constraints.**

If I am contacted in the meantime I will forward any information to yourselves but until this, I advise that you contact the local authority before commencing with any tree works.

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact me.

Signed

Gary Marsden

Gary Marsden FDSc Arb M.Arbor.A
Professional Member - Arboricultural Association (AA)
Professional Member - Consulting Arborist Society (CAS)

For and on behalf of ***GM TREE CONSULTANTS***

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GM TREE CONSULTANTS

STAGE 2 ARBORICULTURAL IMPLICATIONS ASSESSMENT & METHOD STATEMENT TO SUPPORT A PLANNING APPLICATION

CONSULTING ARBORIST: **GARY MARSDEN FDSc Arb M.Arbor.A**

ARBORICULTURAL REPORT FOR:
Brandon Allison
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

LAND OWNER:
Brandon Allison
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

SITE LOCATION:
The Eaves
Pendleton Rd
Wiswell
BB7 9BZ

DATE OF SITE INSPECTION: 25th May 2011

DATE OF REPORT COMPLETION: 16th June 2011

Validation statement for council registration of this report

In accordance with the ***Department for Communities and Local Government circular 02/2008*** and its guidance document ***Validation of Planning Applications,*** this report fulfils the recommended national list criteria for tree survey/arboricultural information. More specifically, it contains the following:

- A full tree survey compliant to the requirements of ***B55837; (2005) Trees in Relation to Construction - Recommendations*** undertaken by a qualified arboriculturist.
- A plan to a suitable scale with a north point and showing tree survey information, retention categorisation and root protection areas.
- An assessment of the arboricultural implications of development detailing trees to be retained / removed and appropriate protection measures.
- An arboricultural method statement detailing the means of tree protection, implementation and phasing of works.

Table of Contents

Summary

The development proposal at this site is to demolish the existing property and rebuild a newly designed property encompassing the existing footprint. I have inspected all the relevant trees that could influence the development of this site and listed there implications within this report along with a method statement to abate any issues, a tree constraints plan has also been included to indicate areas with specific issues to be addressed on this site.

This information has been used to assist the architect in producing there design and methods of construction, while still retaining and protecting any retained trees in compliance with *BS 5837:2005 Trees in relation to construction*.

This proposal will result in the loss of 10 low category trees, one marginal high category tree and 3 and 1/3 groups of trees.

All the significant boundary tree cover located on the eastern boundary will remain intact. There is plenty of space for new planting and a comprehensive new landscape scheme with heavy standard sized tree planting is included as part of the proposal. The establishment of these twenty four new trees will significantly enhance the contribution of this site to local amenity and more than compensate for the loss of the trees.

The construction activity and proposed changes may adversely affect further trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, the development proposal will have no adverse impact on the contribution of trees to local amenity or character. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local amenity well beyond the short term.

Gary Marsden **FDSc Arb M.Arbor.A**

1.0 Introduction

1.1 **Instructions:**
I am instructed by Brandon Allison via Wighton Jagger Shaw Architects Ltd to produce an Arboricultural Implication Assessment (AIA) and Arboricultural Method Statement (AMS) at 'The Eaves' Pendleton Rd, Wiswell, based on the initial tree report that I produced on 31st July 2011 reference number 0178, any designs of the site by the architect Wighton Jagger Shaw Architects Ltd and to provide the following information to comply with the planning approval conditions given by the local authority:

- Tree Protection Plan (TPP).
- Details of any root protection and protective fencing needed.
- A programme of arboricultural input on site.
- Schedule of tree works and timings on site.
- Details of any replacement planting.

1.2 **Purpose of this report:**
This report provides an analysis of the implications of the development proposal on trees and local amenity with additional guidance on appropriate management and protective measures. Its primary purpose is for the council to review the tree information in support of the planning submission and use as the basis for issuing a planning consent or engaging in further discussions towards that end.

Within this planning process, it will be available for inspection by people other than tree experts so the information is presented to be helpful to those without a detailed knowledge of the subject.

1.3 **Qualifications and experience:**
I have based this report on my site observations and any provided information and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix 1.

1.4 **Documents and information provided:**
Wighton Jagger Shaw Architects Ltd provided me with copies of the following documents:

- Their e-mail of instruction dated 8th June 2011
- Drawing number 11-0608 (02)003 Proposed Site Plan, received by email on 8th June 2011

1.5 **Relevant background information:**
Prior to the site visit:

- I have previously visited this site to carry out a stage 1 BS5837 survey on 25th May 2011 from which the report, reference 0178, was written.

1.6 **Scope of this report:**
This report is only concerned with the prominent trees within or around the proximity of the site that could influence the development of this site. It takes no account of any trees outside this remit or any building structural issues. It includes a preliminary assessment based on the site visit and any documents provided, listed in 1.4 above.

This report is based on the initial tree survey report by GM Tree Consultants: Ref 0178; and should be made available for referencing if appropriate.

The survey is based upon information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.

ARBORICULTURAL IMPLICATIONS ASSESSMENT

2.0 Arboricultural Implications Assessment

2.1 **Summary of the impact on trees:**
I have assessed the impact of the proposal on the trees / groups by the extent of disturbance in and around the RPAs and the current and future canopy height and spread. All the trees / groups that may be affected by the development proposal are listed in table 1.

Table 1: Summary of the trees / groups that may be affected by the development on this site if the current proposed plans are implemented.

Impact	Reason	Important trees		Unimportant trees	
		A	B	C	R
Trees / groups to be removed	Building construction, new surfacing, tree quality and / or, proximity	#	T06	33% of group G1d, 100% of groups G1a, G1b, G1e T05, T08, T09,T11, T12, T13, T14,	T03, T07, T10
Trees / groups that may be adversely affected by the tree canopy or through disturbance to RPAs	Removal of existing surfacing / structures / landscaping and or installation of new surfacing / structures / landscaping	T04	#	T02, T15, T16, T17, T18	#

2.2 **Category A and B trees to be removed:**
There are no category 'A' trees located on or immediately adjacent to the site that are to be removed.

Only one category 'B' tree (T06) will be removed. Although this single individual tree has been classified as a high category tree it must be stressed that this categorization is marginal due to its relatively poor canopy framework.

Its removal may be noticeable in the immediate vicinity in the short term but there will be no significant impact on local amenity character in the wider setting in the medium to long terms. Furthermore its removal will provide an opportunity to establish a new tree within this location.

2.3 **Category A and B trees that may be adversely affected through RPA disturbance:**
One category 'A' tree (T04) may be adversely affected by the movement of site traffic / workforce during construction and the landscaping of the site post construction

This tree is considered important for retention and has the potential to contribute to amenity values, so any adverse impacts on it should be minimised. I have reviewed the situation carefully and my experience is that this tree could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.

2.4 **Category C trees to be lost:**
The seven trees to be removed are category 'C' because of their limited potential for long term retention. As such they are considered to be unworthy of influencing any layout. I believe it is not important in the overall planning context and its loss should not influence the determination of this application.

2.5 **Retained category C trees that may be adversely affected through RPA disturbance:**
The single tree T02 that may be damaged through root disturbance, is category C because it is in poor condition, and is considered to have limited potential for long term retention.

As such it is considered to be unworthy of influencing any layout. However, it is proposed for retention and so special precautions will be necessary to ensure that any adverse impact is minimized. These are set out in more detail in section 4 of this report. Although this tree is proposed for retention, I believe it is not important in the overall planning context and any risk of damage to it should not influence the determination of this application.

2.6 **Presence of Tree Preservation Orders (TPO) or Conservation Area Designation:**
There are Tree Preservation Orders in place on the trees within the proposed development site at the time of writing this report.

2.7 **Effects of new buildings on amenity value on or near the site:**
The effect of the new construction on this site have been assessed and have been found not to have any significant effect on the amenity value of the remaining trees on site due to the retained trees being located to the front of the site and the proposed development taking place away from the public road.

2.8 **Above and below ground constraints:**
No construction of foundations or the installations of services are to take place within any Root Protection Area (RPA).

Access for site personnel and site vehicles <3 5T will be needed to facilitate the construction of the property on the existing driveway that passes through the RPA of T04, T15, T16, T17, T18. After assessment this has been deemed permitted on the condition that tree protective fencing is installed prior to any demolition / construction

The existing driveway within the RPA of T04 will be affected post construction when this area is landscaped. This landscaping is to be completed without soil compaction or soil stripping.

No conflict with above ground constraints are foreseen with the planned proposal

Tree felling works will be required to enable the construction of the property. All tree surgery works will be undertaken prior to construction activity and in accordance with the Arboricultural Method Statement 6.15 (Remedial Tree Works).

Any resurfacing of the road / driveway is to be carried out without any excavating below the existing tarmac layer and laid in accordance with the Arboricultural Method Statement section 6.7 (Hard Surfaces)

2.9 **Construction processes of the proposed development:**
Development processes that lead to soil compaction in tree rooting zones and physical damage to trees can adversely affect long-term tree health. This can lead to unnecessary tree loss if not controlled properly on site during the demolition of a building and then the construction phases that follow.

No access to the RPAs of any retained tree will be permitted before or during construction activity apart from the existing tarmac driveway highlighted on the TPP. Therefore there is no risk of machinery causing damage to trunks and low branches.
The processes of construction are highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report are adhered to at all times by the contractors e.g. the positioning of a stout fence between the retained trees construction activities is placed prior to commencement of works and remains intact and in position throughout the duration of the construction activities

2.10 **Modifications proposed to accommodate trees:**
The siting of the dwelling dispenses with a need to modify building construction to accommodate retained trees. The retained trees are far enough away from the siting of the dwellings so as to permit light infiltration to the windows. This will negate the need for subsequent calls for tree pruning due to shading

2.11 **Infrastructure requirements – highway visibility, lighting, CCTV, services etc:**
The installation of services within the rooting zones of trees can have a large detrimental impact on the long-term survival of retained trees leading to their unnecessary loss or root failure in high winds. No services are to be installed within any tree RPA.

The trees on site do not have any impact on highway visibility.

Undisclosed sighting of above ground services, CCTV cameras, electrical sub-stations, refuse stores, lighting and other infrastructure requirements can lead to unnecessary pruning of tree crowns or root loss during or post development. There are no such developments planned to take place adjacent or within the RPA of any retained trees.

2.12 **Mitigating tree loss / new planting:**
Some tree loss will take place as a result of the development of the site. A landscape plan has been drawn up. This will incorporate any new planting of trees sympathetic to the environment and to the benefit of the new development and the surrounding landscape

2.13 **Proximity of trees to structures:**
With the impact of trees on buildings, and vice versa, allowances for future growth have all been considered in the sighting of the new dwellings. Tree size, future growth, light / shading, leaf and fruit nuisance etc have received due attention and are not considered to be an issue This is due to the distance of the retained trees from the development.

The structure has been placed well outside of the RPAs of retained trees and therefore exceeds the recommendations of BS 5837.

3.0 Proposals to mitigate any impact

3.1 **Protection of retained trees:**
The successful retention of trees depends on the protection and the administrative procedures to ensure those protective measures remain in place whilst there is an unacceptable risk of damage. An effective means of doing this is through an arboricultural method statement that can be specifically referred to in a planning condition. An arboricultural method statement for this site is set out in detail in Section 4.

3.2 **New planting:**
In the context of the loss of trees, a comprehensive new landscaping scheme is proposed including twenty four new heavy standard trees, to be established in sustainable and prominent locations throughout the site. Any future selection of species and location should remain provisional until all relevant parties had been fully consulted. However, these new trees should be selected on their potential to reach a significant height without excessive inconvenience and be sustainable into the long term, significantly improving the potential of the site to contribute to local amenity and character.

Below is a list of suitable species that would be suitable for this site. The precise location of the planting sites and species selection will be made by the appointed landscape architect; suggested possible tree planting locations are illustrated on the drawing number 11-0608 (02)003 Proposed Site Plan.

3.3 **Summary of the impact on local amenity:**
This proposal will result in the loss of 10 low category trees, one marginal high category tree and 3 and 1/3 groups of trees.

All the significant boundary tree cover located on the eastern boundary will remain intact. There is plenty of space for new planting and a comprehensive new landscape scheme with heavy standard sized tree planting is included as part of the proposal. The establishment of these twenty four new trees will significantly enhance the contribution of this site to local amenity and more than compensate for the loss of the trees.

The construction activity and proposed changes may adversely affect further trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, the development proposal will have no adverse impact on the contribution of trees to local amenity or character. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local amenity well beyond the short term

ARBORICULTURAL METHOD STATEMENT

4.0 Introduction

4.1 **Terms of reference:**

The impact appraisal in sections 1 and 2 identified the impact on trees and how that affects local character. The following sections are an arboricultural method statement setting out management and protection details that must be implemented to secure successful tree retention.

It is based on the assumption that the minimum general standards for development issues are those set out in British Standards Institution (2005) BS 5837: *Trees in relation to construction - Recommendations* and the National Joint Utilities Group (2007) Volume 4, Issue 1: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*.

I have used my arboricultural expertise to interpret these references in the context of evolving good practice and the specific circumstances on this site.

4.2 **Tree Protection Plan (TPP):**

The Tree Protection Plan in Appendix 2 is illustrative and based on the first site visit and report. This plan can only be used for dealing with the tree issues and all scaled measurements must be checked against the original submission documents. The precise location of all protective measures must be confirmed at the pre-commencement meeting before any demolition, site preparation or construction activity starts. The TPP shows all existing trees on site with their corresponding colours indicating:

- Tree classification.
- Trees to be retained – identified with a continuous Green, Blue or Grey line
- Trees to be removed - identified with a broken Red line
- Protective fence positions therefore the Construction Exclusion Zones (CEZ)
- Any root protection area outside the protective fencing where special precautions must be taken.
- Any new tree planting.
- Sitting of site huts, storage space etc

5.0 Tree protection on site

5.1 **Construction Exclusion Zone:**
The Construction Exclusion Zone (CEZ) required by the current edition; BS 5837:2005 Trees in Relation to Construction; relates to the stem diameter of each tree when measured at a height of 1.5m from ground level. The CEZ are to be afforded protection at all times and will be protected by fencing and / or ground protection. No works will be undertaken within any CEZ that causes compaction to the soil or severance of tree roots.

5.2 **Protective Fencing:**
Illustrative guidance for fencing design based on BS 5837 recommendations is included as Appendix 7. The location of the fencing and the RPAs is illustrated on the TPP as set out on the plan key.

The precise location of the fencing must be agreed with the council on site before any development activity starts e g before any materials or machinery are brought on site, development or the stripping of soil commences.

The fence will have signs attached to it stating that this is a Construction Exclusion Zone and that **NO WORKS ARE PERMITTED WITHIN THE FENCE OR GROUND PROTECTION** The protected fence may only be removed following completion of all construction works.

There are no new areas of planting to be protected during the construction phase.

No access to the site from any other part of the property, other than the two main entrances off Pendleton Rd will be permitted for construction traffic or delivery of supplies.

5.3 **Ground protection:**
Any RPAs outside protective barriers must be covered in ground protection, so that there is no risk of damage from construction / vehicle activities.

Due to the nature of the site and the intended method of construction, ground protection will need to be established by the use of a three dimensional cellular sub base product or another method designed by an engineer and passed by the local planning authority. This is to allow the construction of the new driveway that passes on the fringe of T04 close to the new property. This driveway should be constructed after all major construction has taken place to minimise the impact on the tree.

This area will have signs attached to it stating that this is a Construction Exclusion Zone and that **NO WORKS ARE PERMITTED WITHIN THE FENCE OR GROUND PROTECTION** The fence may only be removed following completion of all major construction works.

This product will be installed adjacent to tree T4, after any construction activity but protected by fencing during construction.

- The cellular confinement system will be placed on top of existing ground levels, (subject to limited clearance of 50mm to remove any spoil) before being filled with 40/20mm angular stone as per the manufacturers' specification.
- A geotextile fabric will then be placed in position before a temporary aggregate surface is deployed to act as a wearing course for the construction phase of the project.
- Once all construction activities are complete this temporary wearing course will be removed, to allow for the installation of a permeable final wearing course.
- Edge retention will be custom designed to avoid any significant excavation into existing soil levels either using pre-formed edging or wooden boards secured by metal pins or wooden pegs.
- Illustrative specifications for special surfacing are included as Appendix 8 and installation methods should accord with guidance set out in Appendix 9.

5.4 Precautions when working in RPAs / CEZ:

Any work in RPAs must be done with care as set out in Appendix 9 and with appropriate reference to section 4.2 above

If temporary access is required to a CEZ then access may only be gained after consultation with the Local Planning Authority and following placement of materials such as geo-textile fabrics that will spread the weight of any vehicular load and prevent compaction to the soil.

For pedestrian movements within any CEZ then a single thickness scaffold board on top of a compressible layer laid onto a geotextile fabric may be acceptable.

On this site, special precautions must be taken near trees as illustrated on TPP and summarized below:

Add headings as needed and reference specific trees as needed

1. **Installation of new soft landscaping:**
   All landscaping activity within RPAs has the potential to cause severe damage and any adverse impact must be minimized by following the guidance set out in Section 5 of Appendix 9.

2. **Installation of new services or upgrading of existing services:**
   It is often difficult to clearly establish the detail of services until the construction is in progress. Where possible, it is proposed to use the existing services into the site and keep all new services outside CEZ. However, where existing services within CEZ require upgrading or new services have to be installed in CEZ, great care must be taken to minimize any disturbance, Trenchless installation should be the preferred option but if that is not feasible, any excavation must be carried out by hand according to the guidelines in Appendix 9. If unexpected services do need to be installed within CEZ, written approval must be obtained from the council before any works are carried out.

3. **Access through the CEZ of T4:**
   During construction the existing tarmac drive will be left open to allow site access and egress. The remaining RPA will be protected be protective fencing. A weight limit of 3 5t will be imposed for site vehicles over this area.

6.0 Other tree related site works

6.1 **Tree work recommendations:**
Tree work proposals based on my preliminary inspection are set out in the management recommendations column of the tree schedule in Appendix 3. The location of each tree is shown on Tree Protection Plan and all trees to be removed are indicated with a red dashed crown outline.

6.2 **Site storage, cement mixing and washing points:**
All site storage areas, cement mixing and washing points for equipment and vehicles must be outside CEZ unless otherwise agreed with the council.

Where there is a risk of polluted water runoff into CEZ, heavy-duty plastic sheeting and sandbags must be used to contain spillages and prevent contamination.

No storage or discharge of any materials likely to be injurious to the tree, i.e. oil bitumen, cement within 10m of a tree stem.

No fires are to be lit under or within 20m of a tree stem and will take into account fire size and wind direction so that, (where wind or radiated heat may be a problem) no flames come within 5m of any foliage or canopy of any retained tree

No signs, cables or telephone wires or other services etc, are to be attached or fixed to trees

Care must be exercised when using cranes or similar equipment near the canopies of trees **Note:** No high-sided vehicles or cranes have access to the site therefore their movement on the site is not an issue.

No retained trees are to be used as anchorage for equipment used to remove stumps or other trees, nor for any other purpose

6.3 **Protection of soil in areas for proposed new planting:**
There are no plans to protect the structure of the soil in these areas from being degraded due to the minimal construction activity in this area throughout this development.

6.4 **Access Details:**
There is no requirement for any special measures related to the retained trees as all access for construction vehicles will be from the 2 access points off Pendleton Rd

6.5 **Site Gradients**
No alterations of soil levels will take place within the CEZ of the protected trees.

6.6 **Demolition:**
Demolition of the existing property will take place as the first phase of the construction process to enable the new property to be built.

Prior to demolition activity, protective fencing must be installed and constructed as per figure 2 in BS 5837 2005 and be fit for the purpose of excluding any construction activity. The location of the fencing can be seen on the Tree Protection Plan (See appendix 3). This fencing forms part of the CEZ.

6.7 **Hard Surfaces:**
No hard surfaces are to be constructed within the CEZ except that of the driveway to the north of T04 and constructed without soil compaction or soil stripping and laid in accordance with the Method Statement.

The construction of the driveway will only take place following completion of construction.

6.8 **Soft landscaping:**
Soft landscaping is scheduled to be carried out in the CEZ of T4 and T2. This must be carried out without soil compaction or stripping.

6.9 **Use of Herbicides:**
IF any herbicide is used within the RPA of a retained tree, it shall be systemic, spot applied, and mixed according to manufacturer's recommendations.

6.10 **On site Monitoring Regime:**
All operations will be monitored by the main contractor

6.11 **Use of subcontractors:**
The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

6.12 **Contractors Parking:**
Off-site away from any retained trees

6.13 **Site Huts and Toilets:**
Off-site away from any retained trees

6.14 **Emergency Procedures:**
Should any problem or emergency that relates to any tree or its protection arise, work in that area is to cease and the area is to be secured against the risk of further damage or possible injury to any person or property.

Once the area is secured both the Consulting arborist and the LPAs tree officer are to be informed so that appropriate action may be taken to remedy the situation.

Water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will contact an arboriculturist for advice.

6.15 **Remedial Tree Works:**
Tree works will be undertaken prior to any demolition / construction on site and the erection of protective fencing or ground protection to form the CEZ. All tree works are to be carried out in accordance with BS 3998: 2010 British Standard Recommendations for Tree Work.

6.16 **Responsibilities:**
It will be the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.

If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998: 2010 British Standard Recommendations for Tree Work

The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes Protective fences will remain in position until completion of ALL construction works on the site

The fencing and signs must be maintained in position at all times and checked on a regular basis by an onsite person designated that responsibility.

7.0 Specifications for new tree planting

7.1 **Site preparation, supply and planting of semi-mature, heavy standard and standard trees:**
Twenty four new trees must be planted according to the relevant illustrative specification included within Appendix 11 at the locations illustrated on the Drawing number 11-0608 (02)003 Proposed Site Plan.
Extensive site preparation beyond the immediate planting pit must be carried out in compliance with this specification to maximize the chances of successful establishment of the new trees.

7.2 **Maintenance:**
These trees must be maintained according to the illustrative specification included as Appendix 11 for 3—5 years as necessary until successful establishment is confirmed by the council. Any trees that die or progressively decline within this period will be replaced and the replacements will be maintained until successful establishment is confirmed by the council.

7.3 **Root barriers / deflectors:**
All new trees that are planted close to or adjacent to hard surfacing will require a root guidance product and must be installed according to the detailed specification in Appendix 10. This is to minimise any possible disturbance to this surface material due to the trees future root growth

7.4 **Structured tree soil:**
No structured tree soil will be required in the planting of the trees on this site.

8.0 Programme of tree protection and supervision

8.1 **Overview:**
Tree protection cannot be reliably implemented without arboricultural input. The nature and extent of that input varies according to the complexity of the issues and the resources available on site. For this site, a summary of the level of arboricultural input that is likely to be required is set out in Appendix 12. An arboricultural consultant must be instructed to work within this framework to oversee the implementation of the protective measures and management proposals set out in this arboricultural method statement

8.2 **Supervision and the discharge of planning conditions:**
Arboricultural planning conditions cannot be reliably or effectively discharged without supervision by an arboricultural consultant. The framework in Appendix 12 must form the basis for the discharge of planning conditions through site visits by an arboricultural consultant. These supervisory actions must be confirmed by formal letters / emails circulated to all relevant parties, including the council. These permanent records of each site visit will accumulate to provide the proof of compliance and allow conditions to be discharged as the development progresses. The developer must instruct an arboricultural consultant to comply with the supervision requirements set out in this document before any work begins on site.

8.3 **Phasing of arboricultural input:**
Trees can only be properly budgeted for and factored into the developing work programme if the overall project management takes full account of tree issues once consent is confirmed. An arboricultural consultant must be involved in the following phases of the project management:

1. **Administrative preparation before work starts on site:**
It is normal for a development proposal to vary considerably from the expectations before consent as the detailed planning of implementation evolves. The early instruction of an arboricultural consultant ensures that tree issues are factored into the complexities of site management and can often help ease site pressures through creative approaches to tree protection. Pre-commencement discussions between the arboricultural consultant and the developer's team is an effective means of project managing the tree issues to maximize site efficiency within often difficult constraints.

2. **Pre-commencement site visit:**
A pre-commencement meeting must be held on site before any of the site preparation or construction work begins. This must be attended by the site manager, the arboricultural consultant and a council representative. If a council representative is not present, the arboricultural consultant must inform the council in writing of the details of the meeting. All tree protection measures detailed in this document must be fully discussed so that all aspects of their implementation and sequencing are understood by all the parties. Any clarifications or modifications to the consented details must be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection will be agreed and finalised by all parties, which will then form the basis of any supervision arrangements between the arboricultural consultant and the developer.

3. **Site supervision:**
Once the site is active, the arboricultural consultant must visit at an interval agreed at the pre-commencement site meeting. The supervision arrangement must be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with developer and council to ensure that appropriate protective measures are designed and in place before any works start on site. Once the site is working, that role will switch to monitoring compliance with arboricultural conditions and advising on any tree problems that arise or modifications that become necessary.

8.4 **Site management:**
It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents must be kept on site at all times and the site manager must brief all personnel who could have an impact on trees on the specific tree protection requirements. This must be a part of the site induction procedures and written into appropriate site management documents.

8.5 **Programme of arboricultural input:**
The sequence set out in Appendix 12 and may only be altered or deviated from with the written consent of the LPA

9.0 How to use this report in the planning process

9.1 **Limitations:**

It is common that the detail of logistical issues such as site storage and the build programme are not finalized until after consent is issued. As this report has been prepared in advance of consent, some of its content may need to be updated as more detailed information becomes available once the post-consent project management starts. Although this document will remain the primary legal reference in the event of any disputes, some of its content may be superseded by authorised post-consent amendments

9.2 **Suggestions for the effective use of this report:**

The Arboricultural method statement of this report, including the relevant appendices, is designed as an enforcement reference. It is constructed so the council can directly reference the detail in a planning condition, Referencing the report by name and relating conditions to specific subsections is an effective means of reducing confusion and facilitating enforcement in the event of problems during implementation. More specifically, the following issues should be directly referenced in the conditions for this site:

1. Pre-commencement meeting (3.2 and Appendix 12)
2. Barriers (4.1 and Appendices 5, 6 & 7)
3. Ground protection (4.2 and Appendix 8)
4. Installation of new surfacing (Appendix 9)
5. Services (4.3.4 and Appendix 9)
6. Tree planting (6.0 and Appendices 10 & 11)
7. Installation of new landscaping (4.3.3 and Appendix 9)
8. Programming of tree protection (7.0 and Appendix 12)
9. Arboricultural supervision (7.0 and Appendix 12)

Each of the above matters must be supervised by an arboricultural consultant and the relevant conditions can only be discharged once that supervision has been confirmed in writing to the council. The last column of the table in Appendix 12 is for council use so that the various supervision issues can be recorded as they are confirmed by supervision letter. This is intended to act as a summary quick-reference within the council file to help keep track of the progress of the supervision.

Gary Marsden FDSc Arb M.Arbor.A

10.0 Bibliography

This report has been compiled with reference to the following publications and interpreted in the context of evolving best practice

- British Standards 5837: 2005; Trees in Relation to Construction - Recommendations
  British Standards Institute.
- British Standards 3998: 2010; Tree work - Recommendations
  British Standards Institute.
- N.JUG Vol. 4: (2007); Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
  National Joint Utilities Group.
- Arboricultural Practice Note 12. Through the Trees to Development. (2007). Derek Patch & Ben Holding,
  Arboricultural Advisory and Information Service.
- The Town & Country Planning Act; 1990
- The Town & Country (Trees) Regulations; 1999

APPENDIX 1

Brief qualifications and experience of Gary Marsden:

Qualifications:

- National Certificate in Arboriculture – August 1998
- The Leonard Cheshire Home Award , Practical Award – September 1998
- NVQ in Amenity Horticulture Level 1 – November 2003
- Foundation Degree In Science - Arboriculture - June 2005
- BTEC Higher National Diploma in Arboriculture – June 2005

Practical experience:

After qualifying at NC level in arboriculture I gained full time employment with Blackburn with Darwen Borough Council as an Arborist / Climber (September 1998) where I gained a wide range of practical Arboricultural experience ranging from pruning, dismantling and planting.

In January 2004 I was promoted to Team Leader Arborist were I developed my skills in Arboriculture, leadership, organisation and prioritising workloads.

In August 2005 I was promoted to 'Arboricultural Officer' this job involves:

- Health and Safety of all Arboricultural aspects
- Inspection and scheduling of tree complaints
- Tree surveys and report writing
- Staff management

In July 2008 I set up my own tree consultancy company – GM Tree Consultants – which I am constantly developing and evolving.

Continuing professional development:

As a conscious effort to stay in touch with the progression in modern techniques and practices in the arboricultural industry, I attend seminars, receive regular arboricultural literature and maintain membership of professional bodies, examples of which are listed below:

- Arboricultural Association Professional Member since November 2006
- Professional Member of the Consulting Arborist Society since May 2009
- Quantified Tree Risk Assessment licensed user since October 2008
- Attendance of Arboricultural Association annual conferences
- Attendance of specialist short courses in relation to specific fields in arboriculture including: tree preservation orders, subsidence and mortgage reports, planning legislation and tree inspection methods and skills.

A detailed breakdown of qualifications and continued professional development training is available; please contact me directly for this information if requested

APPENDIX 2

Tree survey Index:

Tree Locations:
This has been measured from known datum points and plotted on the site plan using a digital laser connected to a laptop. The accuracy given for the tree stem location is ±1m.

Tree Number:
Each surveyed feature is assigned an individual number:
e.g. – Tree A072014013 is made up of:

- 'A' –this represents the tablet pc that was used to record the data
- '07' – this is the month that the inspection was recorded
- '20' – the day of the month when the tree was recorded
- '14' – the hour in the day when the tree was recorded
- '013' – the tree number recorded in that hour of the day (when the hour changes this resets to 001

Alternatively;

Each surveyed feature is assigned a number prefixed by a 'T' for individual trees, 'G' for groups of trees and 'H' for hedgerows

This is used to locate the tree in the data survey and the relevant position on the plan

Species:
The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. The botanical name is followed by the abbreviation sp if only the genus is known

Height:
Overall height of tree recorded in meters. Height is recorded using a clinometer.

Potential Height of tree:
The expected mature height of the tree

Number of stems:
The number of stems of each tree

Height of clear stem:
Height in metres of crown clearance above adjacent ground level at the base of the tree (to inform on ground clearance, crown stem ratio and shading).

Stem Diameter (DBH):
These figures relate to DBH, Diameter at Breast Height 1.5m above ground level and are recorded in centimetres (on sloping ground, taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees. This is accurately measured using a girthing tape

Root Protection Area:
This is the minimum area as a radius or m^2 which should be left undisturbed around each retained tree

Minimum Barrier Distance:
This is the minimum distance the protective barrier should be located prior to any construction work being carried out on site.

Percentage of Compromised Rooting Area:
This is the area of ground the tree is unable to occupy with roots due to a physical barrier or obstruction, i.e. retaining wall.

Adjusted RPA:
This is the new minimum radius in meters that the protective fencing should be erected due to a percentage of compromised rooting area.

Branch Spread:
This is measured in meters taken at the four cardinal points to derive an accurate representation of the crown

Age Class:
Described as young, semi mature, mature, over-mature, veteran.

Physiological Condition:
Described as good, fair, poor, dead and notes as needed.

Structural Condition:
Described as good, fair, poor, dead and notes as needed

Preliminary management recommendations:
Practical arboricultural operations that are suggested and described as needed.

Remaining Contribution:
Estimated remaining contribution in years: e.g less than 10, 10-20, 20-40, more than 40. This is based upon Jeremy Barrels" system of SULE (Safe Useful Life Expectancy).

Tree Retention Category Grading:
R or A to C category grading as referenced from BS 5837:2005 Trees in relation to construction (see Table 1 in Appendix 6)

Tree Works Pre Construction:
Works that are required to allow construction to proceed, this will include felling of 'R' category trees

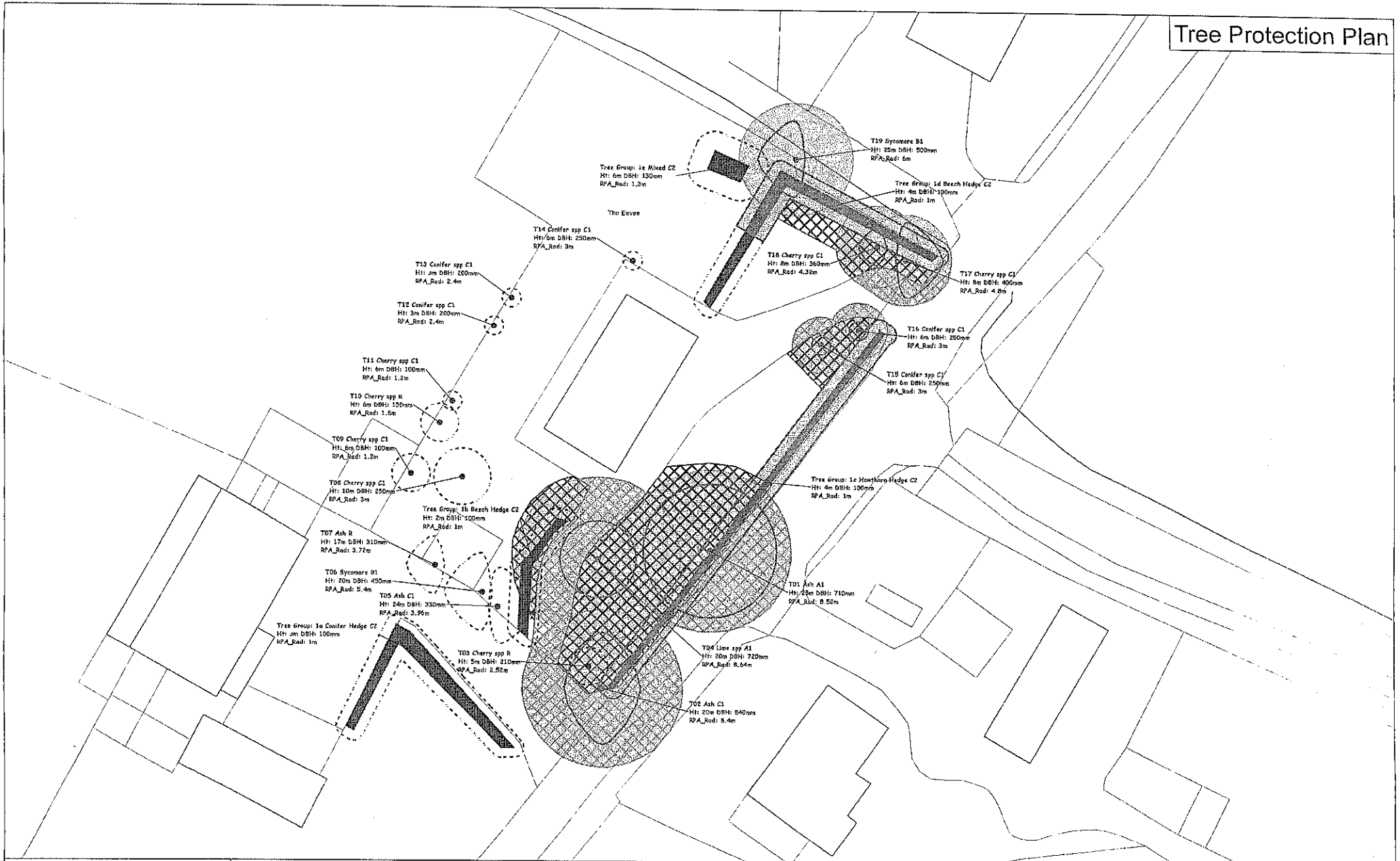
Tree Works Post Construction:
Works that are required post construction; this may include balancing of tree crowns after demolition works

APPENDIX 3

Inserted Tree Protection Plan (TPP) showing all relevant tree information including:

- Tree classification.
- Trees to be retained – identified with a continuous green, blue or grey line
- Trees to be removed - identified with a broken red line
- Protective fence positions therefore the Construction Exclusion Zones (CEZ)
- Ground protection positions therefore the Construction Exclusion Zones (CEZ)
- Any root protection area outside the protective fencing where special precautions must be taken.
- Any new tree planting.
- Sitting of site huts, storage space etc

Tree Protection Plan



Site: The Eaves, Pendleton Road
Job Ref: 0179

0 2.5 5 10 15 20 Metres

Date: 16th June 2011
Scale (@ A2): 1:250

Tree Retention and Protection Measures

- Root Protection Area / Fencing
- Area of construction inside Root Protection Area (existing tarmac driveway)
- Trees / Tree Groups to be removed
- Trees / Tree Groups to be retained

Tree Key

Root Protection Area Extent / Canopy Spread

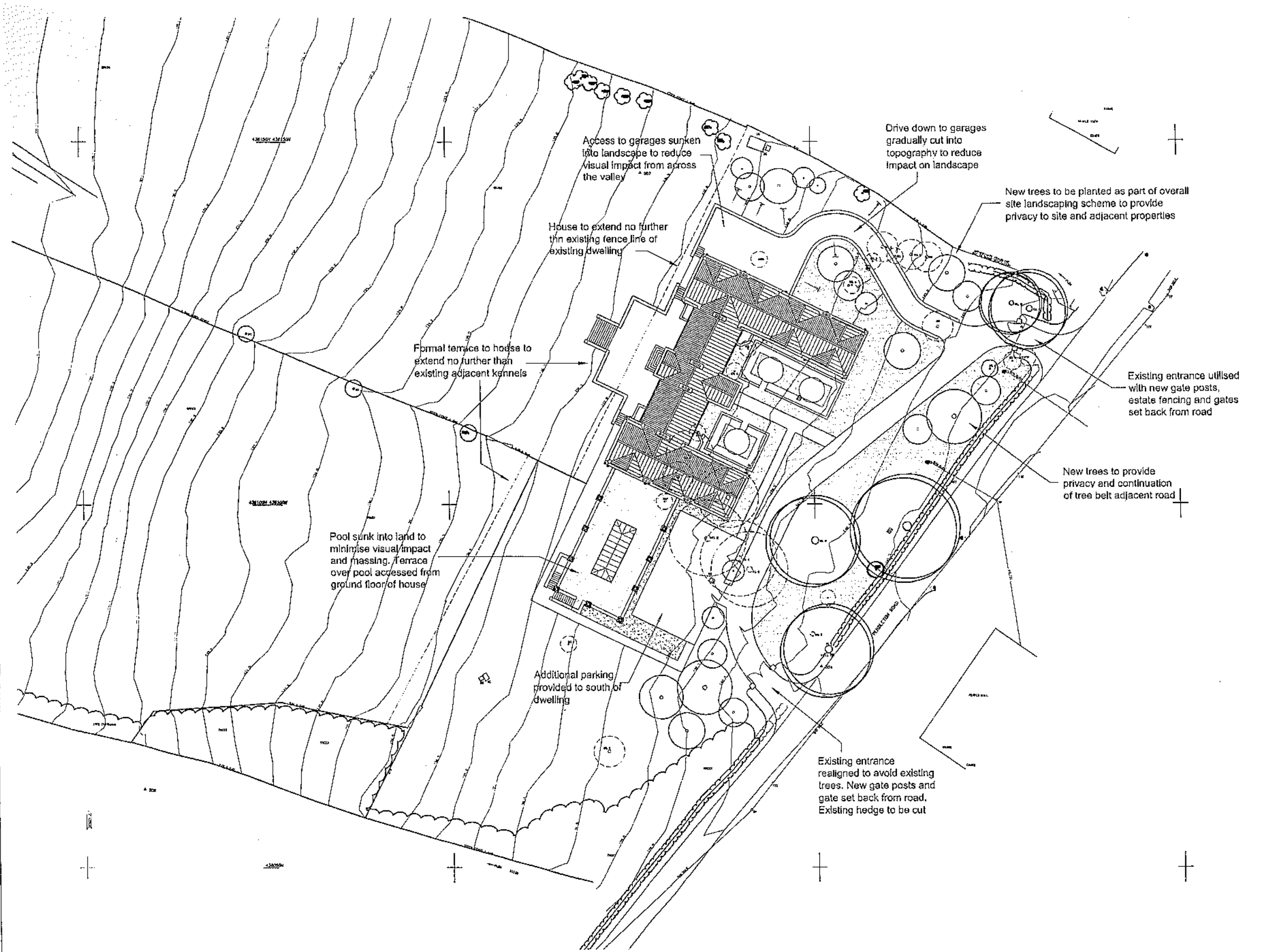
Tree Label Key

Tree Ref Number / Species / BS Retention Category & Value

T06 Sycamore B1
Ht: 12m DBH: 420mm RPA_Rad: 10.5m

Tree Height / Tree Diameter / Radius of Root Protection Area

N



PROPOSED SITE PLAN - Scale 1:500 @ A3

NOTES

Existing Trees

Proposed Trees

Trees to be removed

New estate fencing

Contours every 0.5m

rev	date	drawn	checked
A	01/01/07	XYZ	XYZ

REVISION DESCRIPTION

drawing stage: Stage

drawing status: Status

client: Client 1, Client 2, Client 3

project: Project 1, Project 2, Project 3

drawing title: Title 1, Title 2, Title 3

date: 01/01/07 drawn: XYZ

scale: 1:500 @ A3 checked: XYZ

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Job No / DWG No / Rev

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APPENDIX 4

Inserted tree schedule from initial tree survey report and the tree work schedule pre and post construction:

GM TREE CONSULTANTS BS:5837 TREE SURVEY DATA

TREE SPECIFICS

Tree number	Species (common)	Number of stems	Trunk dia. @ 1.5m (mm)	Height (M)	Potential height of SPECIES (m)	Height of clear stem (meters)	C/S NORTH (m)	C/S EAST (m)	C/S SOUTH (m)	C/S WEST (m)	AGE CLASS	Physiological Condition		Structural Condition		Preliminary management recommendations to ensure SULE is at least 10 years	REMAINING CONTRIBUTION	TREE QUALITY ASSESSMENT	
												Abr.	comments (- and +)	Abr.	comments (- and +)			CAT.	VALUE
1	ash	1	710	25	30.0	5	7	7	7	7	m	good	sparce canopy but consistant for species at time of survey	good	old limb tear at 4m with good occlusion, no extencive decay - slight deadwood in the crown	monitor annually for signs of decline	>40	a	1
2	ash	2	840	20	30.0	6	6	4	6	4	m	fair	tree appears stressed with reduced canopy foliage	fair	die back in the cambium at the base of the tree on the NE stem - dieback within the crown	monitor annually for signs of decline	10>20	c	1
3	cherry	1	210	5	18.0	1	2	2	2	2	y	poor	dead tree	poor	dead but not unstable	fell	<10	r	#
4	lime	1	720	20	30.0	3	4	4	4	4	m	good	good canopy and leaf cover	good	no issues	no work needed	>40	a	1
5	ash	1	330	24	30.0	8	4	4	4	1	sm	good	no issues	good	no issues	no work needed	20>40	c	1
6	sycamore	1	450	20	30.0	6	4	1	4	4	sm	good	no issues	good	suppresed by T6 leading to a non uniform canopy	no work needed	>40	b	1
7	ash	1	310	17	30.0	5	3	1	3	3	sm	poor	die back within the crown deadwood present	poor	rooting area compromised with basal area compromised by wall and concrete foundation	fell	<10	r	#
8	cherry	1	250	10	18.0	5	3	3	3	3	sm	good	no issues	good	no issues	no work needed	20>40	c	1
9	cherry	1	100	6	18.0	2	2	2	2	2	y	good	no issues	good	no issues	no work needed	20>40	c	1
10	cherry	1	150	6	18.0	2	2	2	2	2	y	fair	slight deadwood	poor	decay at the base of the tree	fell	<10	r	#
11	cherry	1	100	6	18.0	2	1	1	1	1	y	good	no issues	good	no issues	no work needed	10>20	c	1
12	conifer	1	200	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	1
13	conifer	1	200	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	1
14	conifer	1	250	6	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	1
15	conifer	1	250	6	30.0	0	1	1	1	1	y	good	no issues	good	starting to encroch onto power line	reduce to give minimum of 2m clearance	>40	c	1
16	conifer	1	250	6	30.0	0	1	1	1	1	y	good	no issues	good	starting to encroch onto power line	reduce to give minimum of 2m clearance	>40	c	1
17	cherry	1	400	8	18.0	2	4	4	4	1	sm	fair	no issues	poor	hard crown reduction back to poor pruning points	monitor annually for signs of decline	10>20	c	1
18	cherry	1	360	8	18.0	2	2	1	2	2	sm	fair	no issues	poor	hard crown reduction back to poor pruning points	monitor annually for signs of decline	10>20	c	1
19	sycamore	1	500	25	30.0	18	4	1	4	4	m	good	no issues	fair	has been pruned to give clearance for utility power line	no work needed	20>40	b	1

GM TREE CONSULTANTS BS:5837 TREE SURVEY DATA

TREE SPECIFICS

Tree number	Species (common)	Number of stems	Trunk dia. @ 1.5m (mm)	Height (M)	Potential height of SPECIES (m)	Height of clear stem (meters)	C/S NORTH (m)	C/S EAST (m)	C/S SOUTH (m)	C/S WEST (m)	AGE CLASS	Physiological Condition		Structural Condition		Preliminary management recommendations to ensure SULE is at least 10 years	REMAINING CONTRIBUTION	TREE QUALITY ASSESSMENT	
												Abr.	comments (- and +)	Abr.	comments (- and +)			CAT.	VALUE
Ga	hedge - conifer	<20	100	3	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gb	hedge - beech	>20	100	2	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gc	hedge - hawthorn	<50	100	4	5.5	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Gd	hedge - beech	<50	100	4	30.0	0	1	1	1	1	y	good	no issues	good	no issues	no work needed	>40	c	2
Ge	mixed	5	130	6	9.0	2	2	2	2	2	y	good	no issues	good	no issues	no work needed	10>20	c	2

GM TREE CONSULTANTS BS:5837 TREE WORKS SCHEDULE

TREE SPECIFICS

Tree number	Species (common)	Number of stems	Trunk dia. @ 1.5m (mm)	Height (M)	Potential height of SPECIES (m)	Height of clear stem (meters)	C/S NORTH (m)	C/S EAST (m)	C/S SOUTH (m)	C/S WEST (m)	AGE CLASS	TREE WORKS PRE CONSTRUCTION	TREE WORKS POST CONSTRUCTION
1	ash	1	710	25	30.0	5	7	7	7	7	m	#	#
2	ash	2	840	20	30.0	6	6	4	6	4	m	#	monitor annually for signs of decline
3	cherry	1	210	5	18.0	1	2	2	2	2	y	REMOVE	#
4	lime	1	720	20	30.0	3	4	4	4	4	m	#	#
5	ash	1	330	24	30.0	8	4	4	4	1	sm	REMOVE	#
6	sycamore	1	450	20	30.0	6	4	1	4	4	sm	REMOVE	#
7	ash	1	310	17	30.0	5	3	1	3	3	sm	REMOVE	#
8	cherry	1	250	10	18.0	5	3	3	3	3	sm	REMOVE	#
9	cherry	1	100	6	18.0	2	2	2	2	2	y	REMOVE	#
10	cherry	1	150	6	18.0	2	2	2	2	2	y	REMOVE	#
11	cherry	1	100	6	18.0	2	1	1	1	1	y	REMOVE	#
12	conifer	1	200	3	30.0	0	1	1	1	1	y	REMOVE	#
13	conifer	1	200	3	30.0	0	1	1	1	1	y	REMOVE	#
14	conifer	1	250	6	30.0	0	1	1	1	1	y	REMOVE	#
15	conifer	1	250	6	30.0	0	1	1	1	1	y	reduce to give minimum of 2m clearance from power line	#
16	conifer	1	250	6	30.0	0	1	1	1	1	y	reduce to give minimum of 2m clearance from power line	#
17	cherry	1	400	8	18.0	2	4	4	4	1	sm	#	monitor annually for signs of decline
18	cherry	1	360	8	18.0	2	2	1	2	2	sm	#	monitor annually for signs of decline
19	sycamore	1	500	25	30.0	18	4	1	4	4	m	#	#
Ga	hedge - conifer	<20	100	3	30.0	0	1	1	1	1	y	REMOVE	#
Gb	hedge - beech	>20	100	2	30.0	0	1	1	1	1	y	REMOVE	#
Gc	hedge - hawthorn	<50	100	4	5.5	0	1	1	1	1	y	#	#
Gd	hedge - beech	<50	100	4	30.0	0	1	1	1	1	y	REMOVE 1/3	#

APPENDIX 5

Inserted Root Protection Area (RPA) calculations:

GM TREE CONSULTANTS BS:5837 RPA DATA

* Calculations giving **MINIMUM** root protection area needed around each tree on site - NOTE - the number of stems denotes which set of calculations are used - trees with one stem use the "single stem results" all other trees use the "multi stem results"

** if the **'optimum'** calculation is used then you will be exceeding the minimum requirements recommended by BS 5837 - therefore minimising any impact to the tree and reducing the chance of rejection / conflict with the Local Planning Authority.

*** The tree maps produced use the **minimum** calculations / dimensions

Tree Data				Single Stemmed Tree						Multi-Stemmed Trees					
Tree Number	Species	Number of stems	Stem Diameter @ 1.5m or above root flair (mm)	Optimum MIN Circle Radius if available (m) (x12 + 20%)	Min Circle Radius (m) (x12)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)	Optimum MIN Circle Radius if available (m) (X10 + 20%)	Min Circle Radius (m) (X10)	Min Radius Squared (m2)	Min Root Protection Area (m2)	Min Length of Sides Of Square (m)	Max 20% offset Value for Open Grown Trees (linear m)
1	ash	1	710	10.22	8.52	72.59	228.05	15.10	1.70						
2	ash	2	840							10.08	8.40	70.56	221.67	14.89	1.68
4	lime	1	720	10.37	8.64	74.65	234.52	15.31	1.73						
15	conifer	1	250	3.60	3.00	9.00	28.27	5.32	0.60						
16	conifer	1	250	3.60	3.00	9.00	28.27	5.32	0.60						
17	cherry	1	400	5.76	4.80	23.04	72.38	8.51	0.96						
18	cherry	1	360	5.18	4.32	18.66	58.63	7.66	0.86						
19	sycamore	1	500	7.20	6.00	36.00	113.10	10.63	1.20						
Gc	hedge - hawthorn	<50	100							1.20	1.00	1.00	3.14	1.77	0.20
Gd	hedge - beech	<50	100							1.20	1.00	1.00	3.14	1.77	0.20

APPENDIX 6

Advanced interpretation of tree data and explanatory notes:

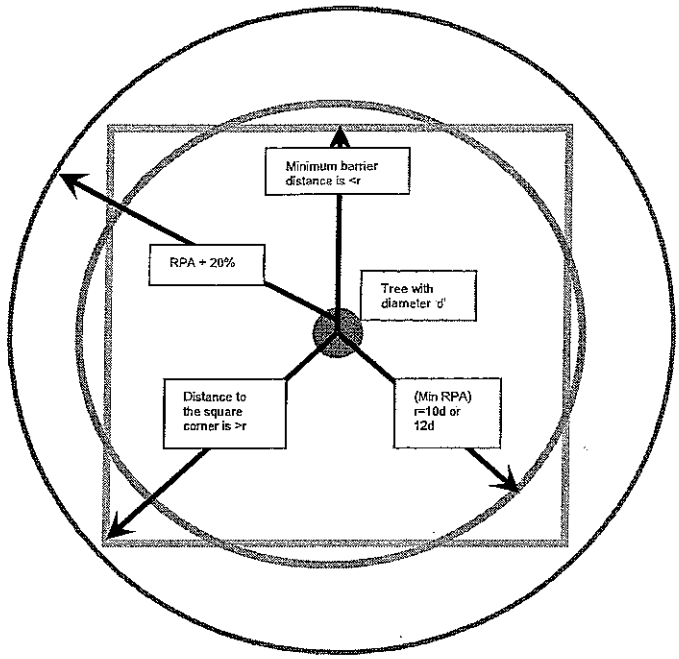


Figure 1: Explanatory diagram for RPA assessment

In Figure 1, a tree with diameter d is in the centre. Its RPA radius is established by measuring its diameter (d) at 1.5m or at ground level (See Clause 5.2.2 of BS 5837) and multiplying that by 12 or 10 respectively.

- **RPA radius:**
  The RPA is calculated by multiplying the square of the radius by π (3.142), i.e. the RPA = πr^2, which is shown by the green circle above.

- **Minimum RPA area:**
  The RPA has been assessed according to the recommendations set out in Table 2 and section 5 of BS 5837; It is calculated by multiplying the radius squared by 3.142, derived from the area of a circle being πr^2.

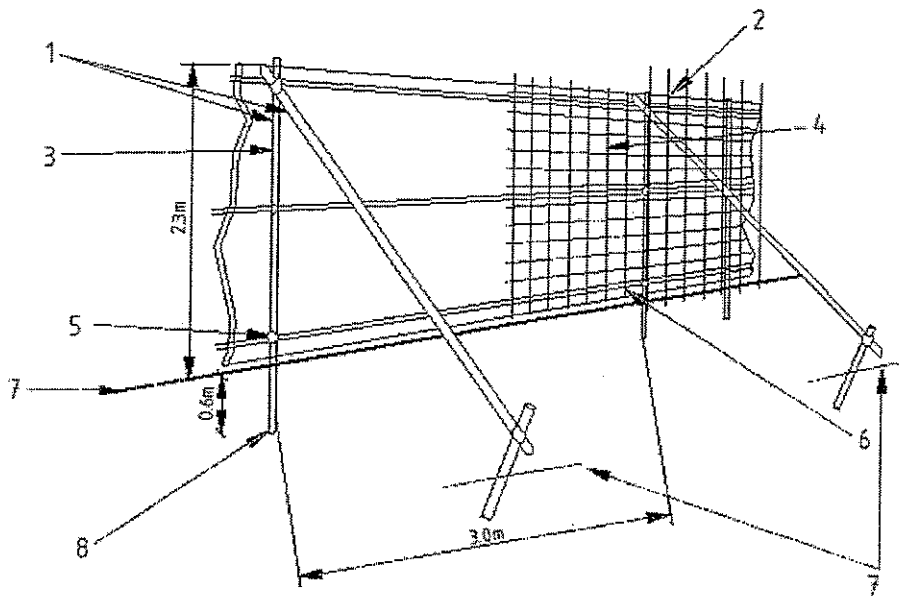
- **Minimum barrier distance:**
  The minimum barrier distance has been assessed according to the recommendations set out in Clause 5.2.3 of BS 5837; it sets out that the RPA can also be represented by a square centred on the trunk of the tree as shown by the blue square above. This square has the same area as the circle but, unlike the circle, where the distance to the centre remains the same for any point on the circumference, the distance of the sides from the centre vary from a minimum that is less than r to a centre-to-corner distance that is greater than r. This is why the minimum barrier distance can be less than r if there is a distance greater than r that allows the RPA to remain the same.

- **Explanation of any minimum barrier distance adjustment in clause 5.2.4 of BS 5837:** It is recommended that the RPA may be changed in shape, taking into account local site factors as assessed by an arboriculturist. Where such an adjustment is appropriate and results in a reduced minimum barrier distance. The minimum barrier distance is calculated by finding the square root of the RPA, which gives the length of one side of the square, and dividing that by two to give the distance from the side to the centre.

APPENDIX 7

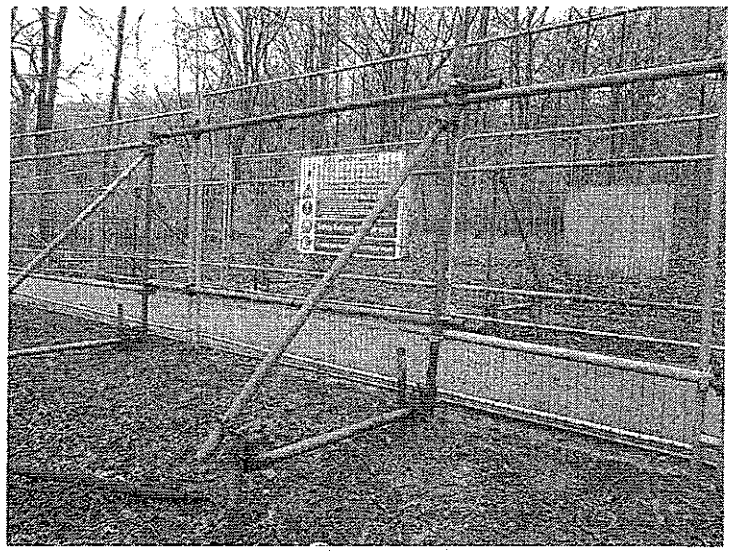
Illustrative specifications for:

1. **Tree protective fencing.**
2. **Ground protection inside the Construction Exclusion Zone.**
3. **Construction Exclusion Zone Warning Signs.**



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



Example of scaffold framework with 'Heras' fencing attached

Illustrative specification for protective fencing located **inside** the Root Protection Zone:

BS 5837:2005 Ground Protection

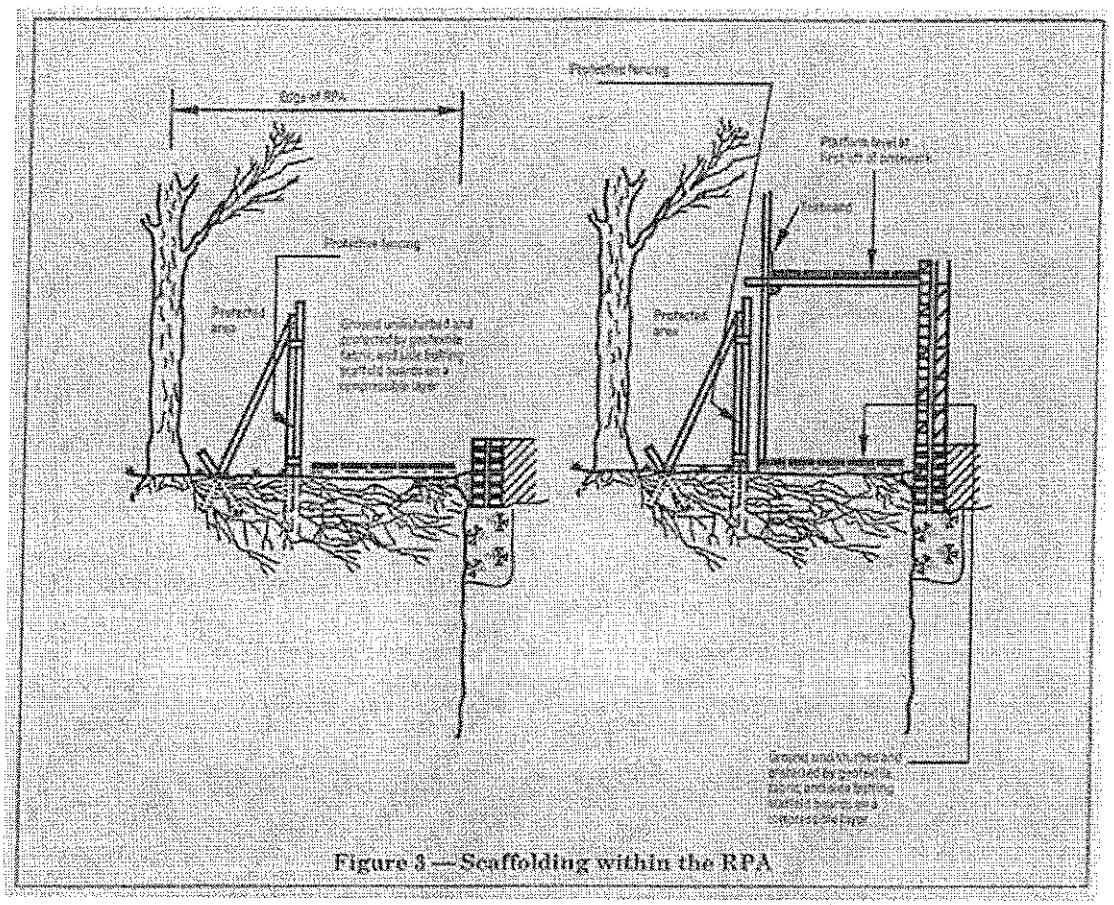
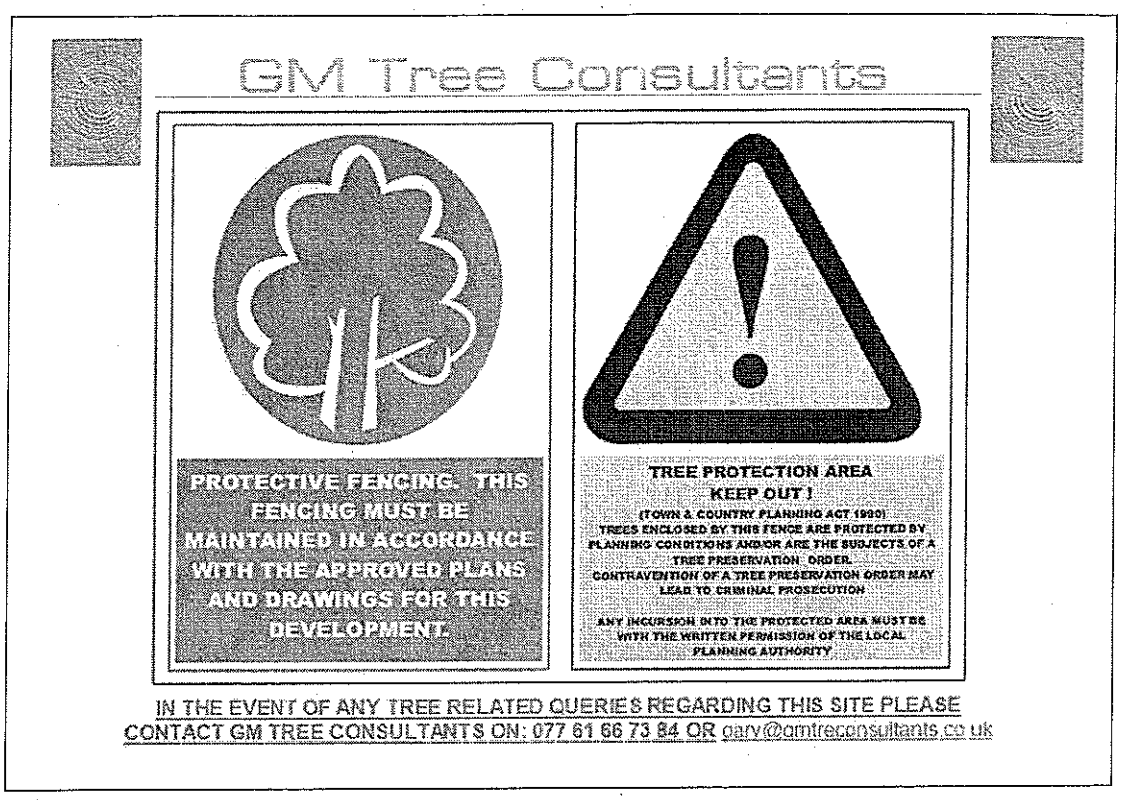


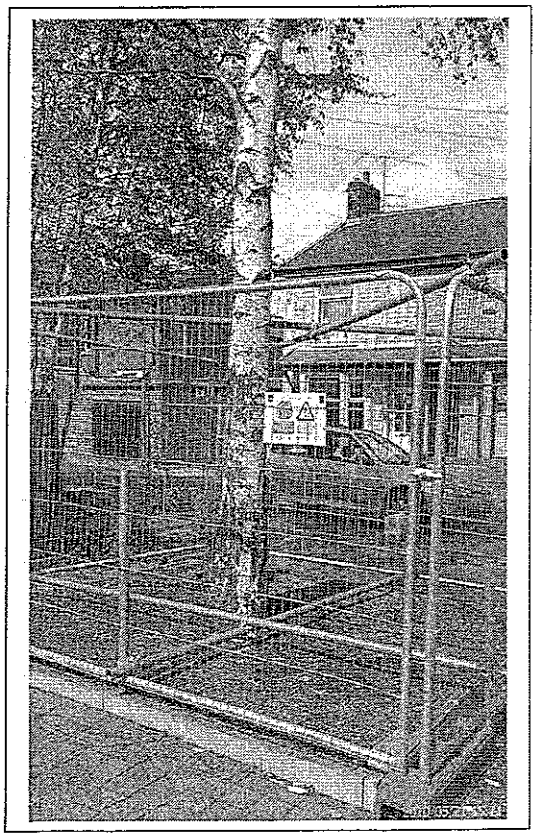
Figure 3 — Scaffolding within the RPA



Example of a warning / information sign to be fixed to the tree protection fencing

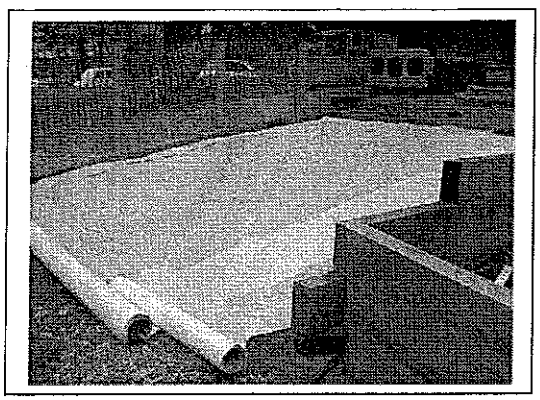
**** A PDF copy of this sign or a laminated version can be supplied if requested (costs may be incurred for laminated version).**

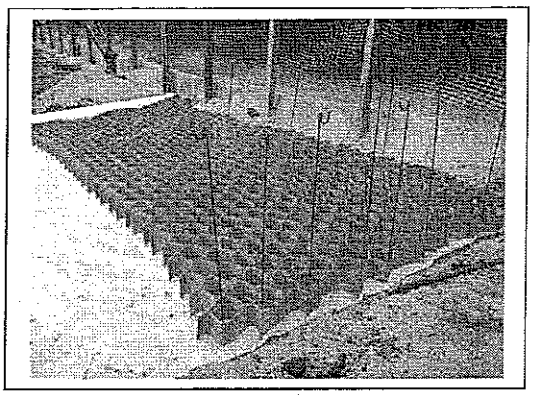
A site photo of protective fencing on site with warning / information sign fixed to the fencing



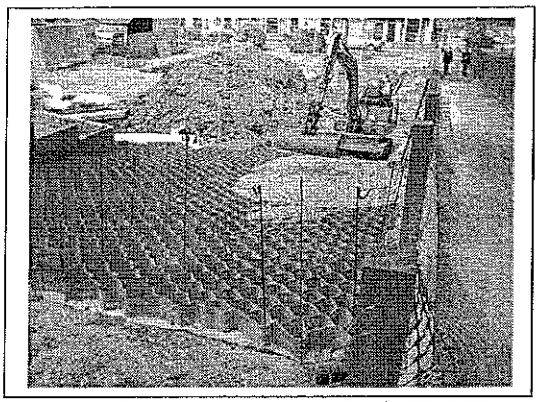
APPENDIX 8

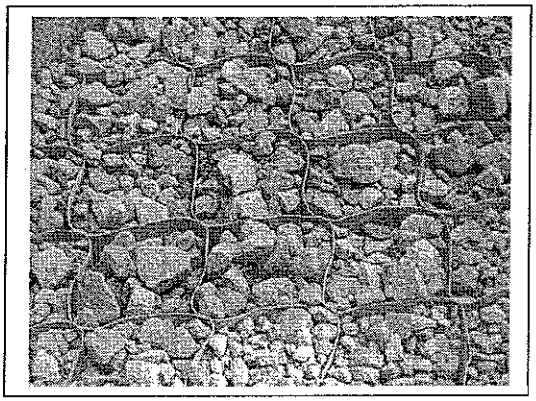
Illustrative specification for ground surface protection measures and special surfacing **within** root protection areas:



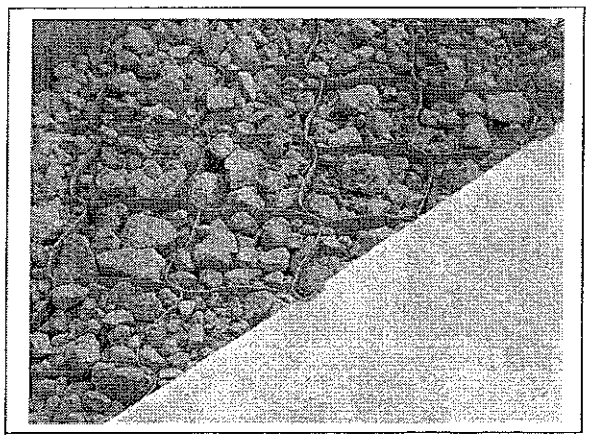


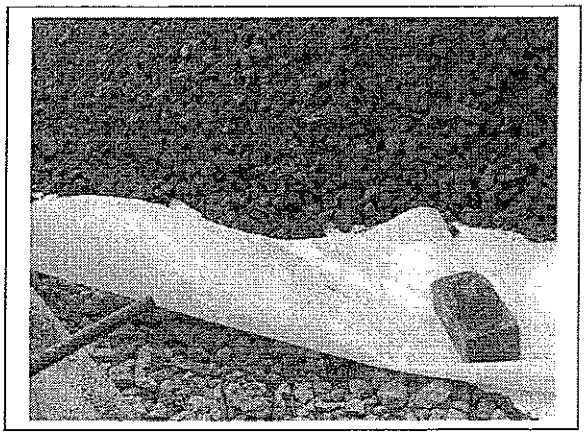
Laying of geotextile fabric with the cellular confinement system pined in place





Appropriate aggregates are back filled filling all of the cells





Geotextile fabric laid over filled cells then covered with temporary / permanent wearing course as per construction specifications

APPENDIX 9

Site guidance for working in root protection areas (RPAs)

1.0 GENERAL GUIDANCE FOR WORKING IN RPAs

1.1 **What is the purpose of this guidance?** This guidance sets out the general principles that must be followed when working in RPAs. Where more detail is required, it will be supplemented by illustrative specifications in other appendices in this document. Before work starts on site, the purpose of this guidance is to demonstrate to the council that tree protection issues have been properly considered and to provide a written record of how they will be implemented. Once the site works start, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in RPAs must be properly briefed about their responsibilities towards important trees based on this guidance.

1.2 **What are RPAs?** RPAs are the areas surrounding important trees where disturbance must be minimised if they are to be successfully retained. All RPAs close to the construction area are illustrated on the tree protection plans accompanying this guidance. Damage to roots or degradation of the soil through compaction and/or excavation is likely to cause serious damage. Any work operations within RPAs must be carried out with great care if trees are to be successfully retained.

1.3 **When should this guidance be followed?** Anyone entering a RPA must follow this guidance if important trees are to remain unharmed. Anyone working in a RPA must take care to minimize excavation into existing soil levels and limit any fill or covering that may adversely affect soil permeability. There are two main scenarios where this guidance must be followed when entering and working within a RPA:

1. Removal of existing surfacing / structures and replacement with new surfacing, structures and / or landscaping.
2. Preparation and installation of new surfacing, structures and / or landscaping

Broad definitions of surfacing, structures and landscaping are set out in the following sections

1.4 **Where does this guidance apply?** This guidance should always be read in conjunction with the site plans illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and intended to be interpreted in the Context of the site conditions when the work is started. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the appropriate supervising officer before any demolition or construction work starts.

1.5 **What references is this guidance based on?** This guidance is based on the assumption that the minimum general standards for development issues are those set out in British Standards Institution (2005) BS 5837: *Trees in relation to construction — Recommendations* and the National Joint Utilities Group (2007) Volume 4, Issue 1: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*. It is interpreted in the context of our experience of managing trees on development sites.

1.6 **Preventing adverse impact to the RPA beyond the immediate work area:** Any part of the RPA beyond the agreed work area must be isolated from the work operations by protective barriers or ground protection to at least the minimum standard described in BS 5837 for the duration of the work. Appendix 7: Site guidance for working in root protection areas (RPAs)

1.7 **Excavation and dealing with roots:** All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimize the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of smaller roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage. If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots to be removed should be cut cleanly with a sharp saw or secateurs 10—20cm behind the final face of the excavation. Roots temporarily exposed must be protected from direct sunlight, drying out and extremes of temperature by appropriate covering. Roots greater than 2.5cm in diameter should be retained where possible. Roots 2.5—10cm in diameter should only be cut in exceptional circumstances. Roots greater than 10cm in diameter should only be cut after consultation with the appropriate supervisory officer.

1.8 **Arboricultural supervision:** Any work within RPAs requires a high care. Qualified arboricultural supervision is essential to minimize the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any work starts. Ongoing work must be inspected regularly and, on completion, the work must be signed off by the arboriculturist to confirm compliance by the contractor. In the context of this guidance, an appropriate supervising officer would normally be an arboriculturist.

2.0 REMOVING SURFACING / STRUCTURES IN RPAs

2.1 **Definitions of surfacing and structures:** For the purposes of this guidance, the following broad definitions apply:

- **Surfacing:** Any hard surfacing used as a vehicular road, parking or pedestrian path including tarmac, solid stone, crushed stone, compacted aggregate, concrete and timber decking. This does not include compacted soil with no hard covering.
- **Structures:** Any man-made structure above or below ground including service pipes, walls, gate piers, buildings and foundations: Typically, this would include drainage structures, car-ports, bin stores and concrete slabs that support buildings

2.2 **Access:** Roots frequently grow adjacent to and beneath existing surfacing/structures so great care is needed during access and demolition. Damage can occur through physical disturbance of roots and / or the compaction of soil around them from the weight of machinery or repeated pedestrian passage. This is not generally a problem whilst surfacing / structures are in place because they spread the load on the soil beneath and further protective measures are not normally necessary. However, once they are removed and the soil below is newly exposed, damage to roots becomes an issue and the following guidance must be observed:

1. No vehicular or repeated pedestrian access into RPAs unless on existing hard surfacing or custom designed ground protection.
2. Regular vehicular and pedestrian access routes must be protected from compaction with temporary ground protection as set out in BS 5837.
3. RPAs exposed by the work must be protected as set out in BS 5837 until there is no risk of damage from the development activity

2.3 **Removal:** Removing existing surfacing/structures is a high-risk activity for any adjacent roots and the following guidance must be observed: Appendix 7: Site guidance for working in root protection areas (RPAs)

1. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork dud wheelbarrow

Secateurs and a handsaw must also be available to deal with any exposed roots that have to be cut.

2. Machines with a long reach may be used if they can work from outside RPAs or from protected areas within RPAs. They must not encroach onto unprotected soil in RPAs.

3. Debris to be removed from RPAs manually must be moved across existing hard surfacing or temporary ground protection in a way that prevents compaction of soil. Alternatively, it can be lifted out by machines provided this does not disturb RPAs.

4. Great care must be taken throughout these operations not to damage roots as set out in 1.7 above.

5. If appropriate, leaving below ground structures in place should be considered – their removal may cause excessive root disturbance.

3.0 INSTALLATION OF NEW SURFACING IN RPAs

3.1 **Basic principles:** New surfacing is potentially damaging to trees because it may require changes to existing ground levels, result in localized soil structure degradation and / or disrupt the efficient exchange of water and gases in and out of the soil. Mature and over mature trees are much more prone to suffer because of these changes than younger and maturing trees. Adverse impact on trees can be reduced by minimizing the extent of these changes in RPAs. Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localized compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.

3.2 **Establishing the depth of excavation and surfacing gradient:** The precise location and depth of roots within the soil is unpredictable and will only be known when careful digging starts on site. Ideally, all new surfacing in RPAs should be no-dig, i.e. requiring no excavation whatsoever, but this is rarely possible on undulating surfaces. New surfacing normally requires an evenly graded sub-base layer, which can be made up to any high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted as would happen in conventional surface installation. Some limited excavation is usually necessary to achieve this and need not be damaging to trees if carried out carefully and large roots are not cut. Tree roots and grass roots rarely occupy the same soil volume at the top of the soil profile, so the removal of a turf layer up to 5cm is unlikely to be damaging to trees. It may be possible to dig to a greater depth depending on local conditions but this would need to be assessed by an arboriculturist if excavation beyond 5cm is anticipated. On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility to allow on-site adjustment if excavation of any high points reveals large unexpected roots near the surface. If the roots are less than 2.5cm in diameter, it would normally be acceptable to cut them and the gradient formed with the preferred minimal excavation of up to 5cm. However, if roots over 2.5cm in diameter are exposed, cutting them may be too damaging and further excavation may not be possible. If that is the case, the surrounding levels must be adjusted to take account of these high points by filling with suitable material. If this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made

3.3 **Base and finishing layers:** Once the sub-base has been formed, the load spreading construction is installed on top without compaction. In principle, the load spreading formation will normally be cellular and filled with crushed stone although the detail may vary with different products. Suitable surface finishes include washed gravel, permeable tarmac or block paviours set on a sand base. However, for lightly loaded surfacing of limited widths (<3m) such as pedestrian paths, pre-formed concrete slabs may be appropriate if the sub-base preparation is as set out above. In some situations, limited width floating concrete

rafts constructed directly on to the soil surface may be acceptable but the design must not include any strip-dug supports.

3.4 **Edge retention:** Conventional kerb edge retention set in concrete filled excavated trenches is likely to result in damage to roots and should be avoided. Effective edge retention in RPAs must be custom designed to avoid any significant excavation into existing soil levels. For most surfaces, the use of pre-formed edging secured by meta' pins or wooden pegs is normally an effective way of minimizing any adverse impact on trees from the retention structure.

3.5 **Installing new surfacing on top of existing surfacing:** In some instances surfacing can be retained and used as a base for new surfacing. Normally, this will not result in significant excavation that could expose roots so special precautions are not necessary. However, if large roots already protrude above the proposed sub-base level, then the precautions and procedures set out above must be observed.

4.0 INSTALLATION OF NEW STRUCTURES IN RPAs

4.1 **Basic principles:** New structures in RPAs are potentially damaging to trees because they may disturb the soil and disrupt the existing exchange of water and gases in and out of it. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimizing the extent of these changes in RPAs. This can be done by constructing the main structures above ground level on piled supports and redirecting water to where it is needed. The detailed design and specification of such structures is an engineering issue that should be informed and guided by tree expertise.

4.2 **Small sheds and bin stores:** These light structures do not normally require substantial foundations and can have permeable bases. Ideally, their bases should be of a no-dig, load-spreading construction set directly on to the soil surface. They require a flat base and so an undulating site will need leveling to provide a suitable surface. Excavation of any high points by up to 5cm and filling depressions with permeable fill to provide a flat base will normally be acceptable provided no roots greater than 2.5cm in diameter need to be cut. If large roots are found, the preferred course of action would be to raise the base level of the structure by filling rather than cutting roots. However, if this is not practical and large roots have to be cut, the situation should be discussed with the supervising officer before a final decision is made. Above the base, there will often be a protective covering fixed onto a frame that can rise directly from the base or be fixed to supports either banged into the ground or set in carefully dug holes. Provided the supports are well spaced, i.e. greater than 1 .5m apart, and of a relatively narrow diameter, i.e. not in excess of 15cm, it is unlikely they will cause any significant disturbance to RPAs.

4.3 **Walls, gate piers, buildings and bridges on new foundations:** Conventional strip foundations in RPAs for any significant structure may cause excessive root loss and are unlikely to be acceptable. However, disturbance can be significantly reduced by supporting the above ground part of the structures on small diameter piles and beams or cast floor slabs set above ground level. The design should be sufficiently flexible to allow the piles to be moved if significant roots are encountered in the preferred locations. Before the actual installation of the new structure starts, all RPAs that may be affected should be covered with temporary ground protection as set out in BS 5837. Gaps in the ground protection should be left where it is expected to install the piles or dig the holes for gate piers. Pile locations should be initially hand dug to a depth of 75cm to establish if there are any significant roots over 2.5cm in diameter that could be damaged. If significant roots are found, then the pile location must be moved slightly and a new exploratory hole dug. Once the piles have been installed, the lowest points of the supporting beams for the structure must be above the ground level between the piles and there should not be any further excavation. The beams between the piles can be pre-cast and imported to the site ready to fix or can be cast in position using shuttering for the sides and a biodegradable void-former for the base. Gate piers generally require larger holes and have less flexibility for relocation if large roots are found. Localized loss of roots may be unavoidable so each situation should be assessed on its own merits by an appropriate supervising officer once the careful

excavations have been completed. Any roots found should be dealt with as set out in 1.7 above. When installing any of these structures, the ground protection must remain in place until the construction is completed and there is no risk of damage to RPAs.

4.4 **Walls on existing foundations:**
A free-standing wall on an existing foundation is unlikely to require any additional excavation and so its construction should have no adverse impact on RPAs if the appropriate protection is in place. However, replacing walls that retain the soil of RPAs normally requires some limited excavation back into the exposed soil face to provide a working space of at least 10—20cm behind the inside wall face. This should be done carefully and limited to no more than required to construct the new wall. Any roots found should be dealt with as set out in 1.7 above. Once the wall is completed, any voids behind it should be filled with good quality top soil and firmed into place but not over compacted. Specific difficulties with large roots that emerge during the course of the construction should be referred to the supervising officer.

4.5 **Services:** For the purposes of this guidance, services are considered as structures. Excavation to upgrade existing services or install new services in RPAs may damage retained trees and should only be chosen as a last resort. In the event that excavation emerges as the preferred option, the decision should be reviewed by the supervising officer before any work is carried out. If excavation is agreed, all digging should be done carefully and follow the guidance set out in 1.7 above.

5.0 SOFT LANDSCAPING IN RPAs

5.1 Upgrading existing soft landscaping or replacing existing surfacing/structures with new soft landscaping: For the purposes of this guidance, soft landscaping includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of solid structures or compacted surfacing. Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within RPAs. Where new designs require levels to be increased to tie in with new structures or the removal of an existing structure has left a void below the surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place but not over compacted in preparation for turfing or careful shrub planting. Ideally, all areas close to tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage.

APPENDIX 10

Illustrative specification for the construction of tree pits with structured soil, root deflectors, irrigation surfaces finishing in hard standing areas

ROOT MANAGEMENT PRODUCTS

Management of tree roots is an increasingly important issue in urban tree planting projects.
There are broadly two different root management strategies:
1. Root barriers are installed against an underground object, such as building foundations, to prevent any tree root from damaging the object.
2. Root deflectors encircle the tree roots within a ring of strong material that will force the roots to be deflected downwards and outwards to a depth where they will not cause any surface damage.

ROOT BARRIERS

These are typically installed in a trench alongside building foundations, pavements and underground utilities to protect them from damage by roots. A range of products and sizes are available for different situations from 60cm deep barriers for protecting pavements, shallow utilities and service ducts to 2m deep high-strength barriers for protecting deeper utilities or building foundations.

Root 600 / 1000
This is a flexible product that can be easily curved around obstacles, yet is rigid enough to hold its form during backfilling. Made of HDPE and available in depths of 600mm and 1000mm. Integral ribs deflect roots downwards making this a dual purpose root barrier and root director product.

Root 2000
A high strength root barrier for deepest applications including foundations, services and utilities. Rigid enough to hold its form when dropped into a trench make installation straightforward. Made from HDPE it is available in depths of 1.0m, 1.5m and 2m and in 3 thicknesses: 1.0mm, 1.5mm and 2.0mm.

ROOT DIRECTORS

These are typically installed around individual trees or groups of trees to direct their root growth downwards and outwards to a level where they can safely establish without surface damage to pavements (root heave) or to shallow service ducts. There are several products designed for this application which have ribs or similar features to prevent the roots from circling round and round instead of going downwards.

Root 600 / 1000
This is a dual-purpose product suitable for both root director applications as well as the root barrier applications described above.

DeepRoot Director
This is the market-leading product in America and has had many years in use. A very simple and effective product that provides a 'heavy duty' director for any size tree or group of trees. It is created in situ by simply linking together a series of panels to form a circle or square of the desired size and shape to enclose the tree roots. This product is also suitable for use as a linear barrier.

DeepRoot Europe

Correct product selection, installation and positioning are important for all root barrier products and if in doubt we recommend that appropriate advice is obtained. Whilst all these products are tried and tested no warranties can be given.

SAMPLES AND SPECIFICATIONS ARE AVAILABLE ON REQUEST

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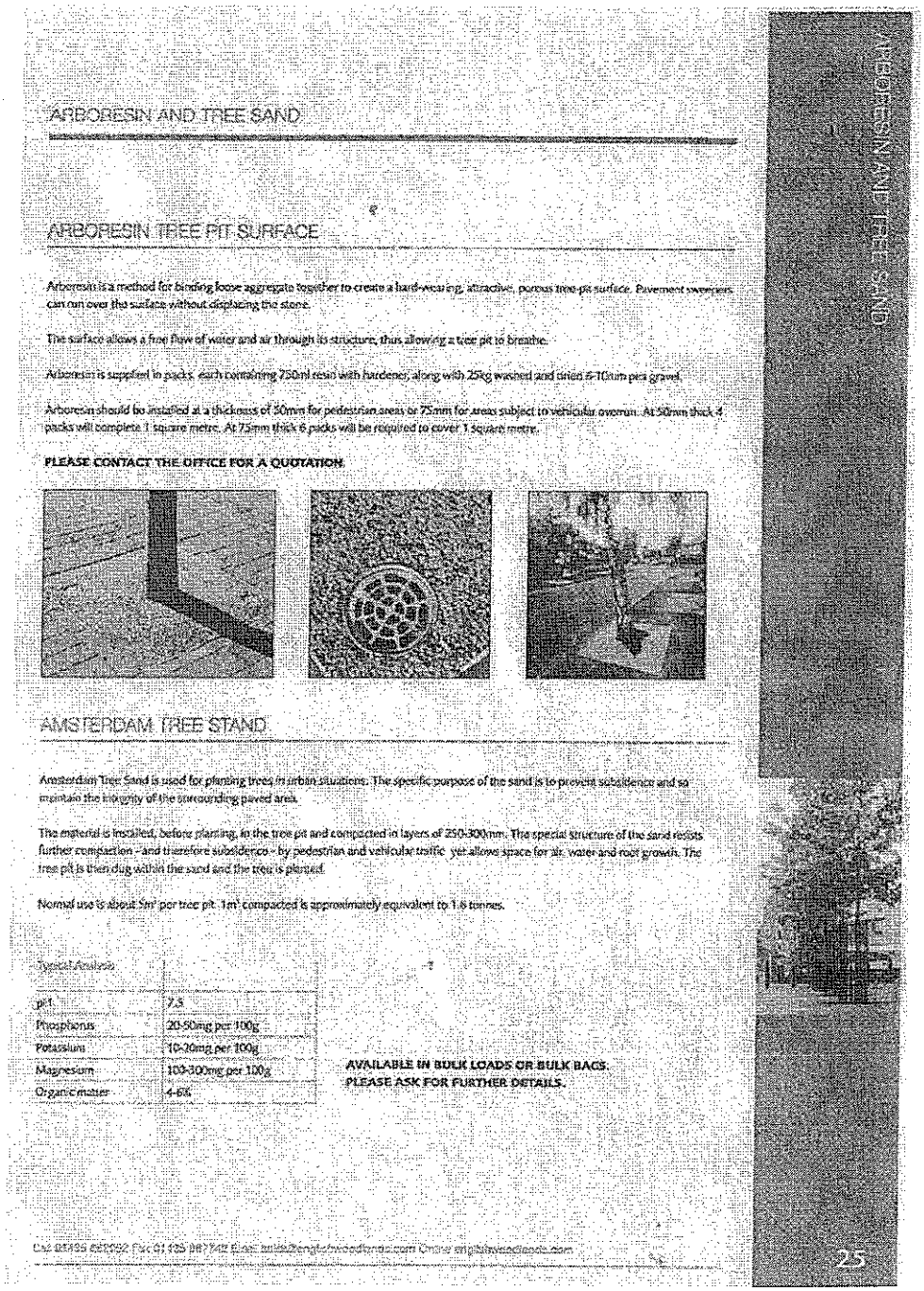
Illustrative specification for the construction of tree pits with structured soil, root deflectors, irrigation surfaces finishing in hard standing areas.



ARBORESIN AND TREE SAND

ARBORESIN TREE PIT SURFACE

Arboresin is a method for binding loose aggregate together to create a hard-wearing, attractive, porous tree-pit surface. Pavement sweepers can run over the surface without displacing the stone.

The surface allows a free flow of water and air through its structure, thus allowing a tree pit to breathe.

Arboresin is supplied in packs, each containing 750ml resin with hardener, along with 25kg washed and dried 6-10mm pea gravel.

Arboresin should be installed at a thickness of 50mm for pedestrian areas or 75mm for areas subject to vehicular overrun. At 50mm thick 4 packs will complete 1 square metre. At 75mm thick 6 packs will be required to cover 1 square metre.

PLEASE CONTACT THE OFFICE FOR A QUOTATION.

AMSTERDAM TREE STAND

Amsterdam Tree Sand is used for planting trees in urban situations. The specific purpose of the sand is to prevent subsidence and so maintain the integrity of the surrounding paved area.

The material is installed, before planting, in the tree pit and compacted in layers of 250-300mm. The special structure of the sand resists further compaction - and therefore subsidence - by pedestrian and vehicular traffic, yet allows space for air, water and root growth. The tree pit is then dug within the sand and the tree is planted.

Normal use is about 5m³ per tree pit. 1m³ compacted is approximately equivalent to 1.6 tonnes.

Typical Analysis

pH	7.5
Phosphorus	20-50mg per 100g
Potassium	10-20mg per 100g
Magnesium	100-300mg per 100g
Organic matter	4-6%

AVAILABLE IN BULK LOADS OR BULK BAGS.
PLEASE ASK FOR FURTHER DETAILS.

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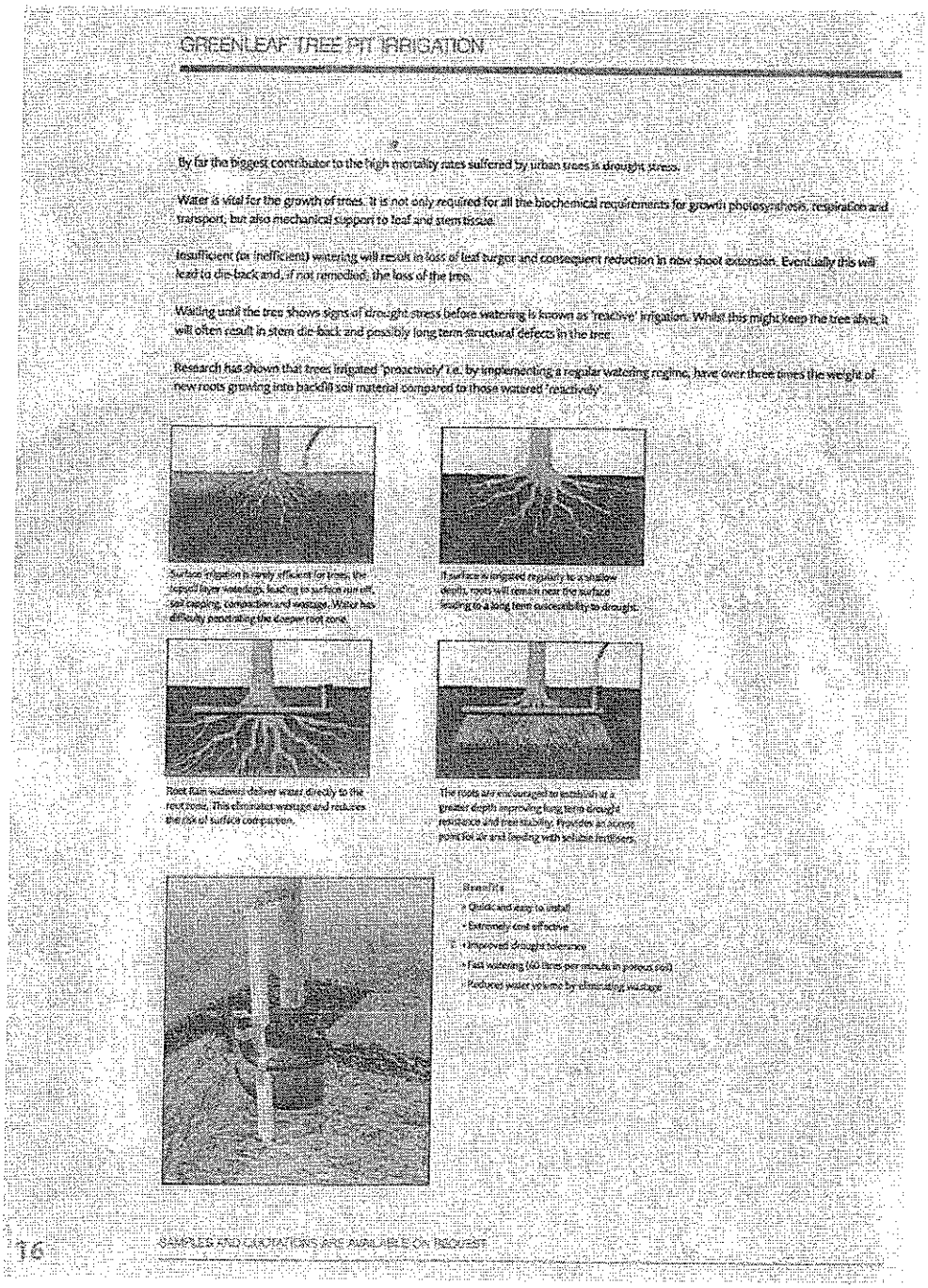
Illustrative specification for the construction of tree pits with structured soil, root deflectors, irrigation surfaces finishing in hard standing areas



GREENLEAF TREE PIT IRRIGATION

By far the biggest contributor to the high mortality rates suffered by urban trees is drought stress.

Water is vital for the growth of trees. It is not only required for all the biochemical requirements for growth photosynthesis, respiration and transport, but also mechanical support to leaf and stem tissue.

Insufficient (or inefficient) watering will result in loss of leaf turgor and consequent reduction in new shoot extension. Eventually this will lead to die-back and, if not remedied, the loss of the tree.

Waiting until the tree shows signs of drought stress before watering is known as 'reactive' irrigation. Whilst this might keep the tree alive, it will often result in stem die-back and possibly long term structural defects in the tree.

Research has shown that trees irrigated 'proactively' i.e. by implementing a regular watering regime, have over three times the weight of new roots growing into backfill soil material compared to those watered 'reactively'.

Surface irrigation is rarely efficient for trees, the topsoil layer waterlogs leading to surface run off, soil capping, compaction and wastage. Water has difficulty penetrating the deeper root zone.

If surface is irrigated regularly to a shallow depth, roots will remain near the surface leading to a long term susceptibility to drought.

Root Rain waterers deliver water directly to the root zone. This eliminates wastage and reduces the risk of surface compaction.

The roots are encouraged to establish at a greater depth improving long term drought resistance and tree stability. Provides an access point for air and feeding with soluble fertilisers.

Benefits

- Quick and easy to install
- Extremely cost effective
- Improved drought tolerance
- Fast watering (60 litres per minute in porous soil)
- Reduces water volume by eliminating wastage

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SAMPLES AND QUOTATIONS ARE AVAILABLE ON REQUEST

APPENDIX 11

Illustrative specification for the planting of tree stock – (Semi Mature)

Civic Trees
SUPPLY PLANT RELOCATE

Specification for semi-mature tree planting for both root-ball and container grown stock

102 High Street Tring
Hertfordshire HP23 4AF
Tel: 01442 825401
Fax: 01442 890275
www.civictrees.co.uk

Introduction

Semi-mature trees are defined by the British Standards Institution and HTA as:
"Trees with an overall height in excess of 4 metres and or a stem girth measurement (circumference) of 20 centimetres or larger."
They will have been transplanted several times and are likely to be more than 10-15 years old.

Specification

1. Planting locations are agreed and inspected, a site assessment made with consideration given to tree species, access, overhead and underground services plus general safety to operatives and members of the public.
2. The planting site shall be naturally or physically drained or raised to prevent the trees from being waterlogged at any time. The soil texture and structure will retain and release moisture and nutrients to the trees and have a structure that will promote root growth. The planting site can be improved with the addition of peat-free compost, water retaining polymer, fertiliser and good topsoil where necessary.
3. The excavated hole shall be of sufficient size to accommodate the root-ball or container, allowing approximately 500mm clearance. Before planting the sides of the pit shall be broken up and the base dug over to a depth of 150mm to improve drainage. The tree will be planted to the same depth as it was in the nursery. Backfill will be firmed in around the rootball to prevent any air pockets.
4. An irrigation/aeration system will be installed comprising of a 60mm diameter, perforated pipe around the rootball 100mm below the surface.
5. Installation of a supporting system for the tree will be necessary. This will either be overhead or underground guying. The overhead guying comprises of 4mm steel cable attached to the main stem of the tree and to 1m metal stakes to secure the root-ball in the ground.
6. Any necessary formative pruning will be carried out and where appropriate woodchip/bark mulch applied to a depth of 50mm, and to at least the edge of the planting pit.
7. A properly planned maintenance programme should be kept up until successful establishment of the trees. This may include watering when necessary, checking of the support systems, weed control and further mulching. Support guys or stakes should be removed once the trees are established, usually after 2-3 years.

Summary

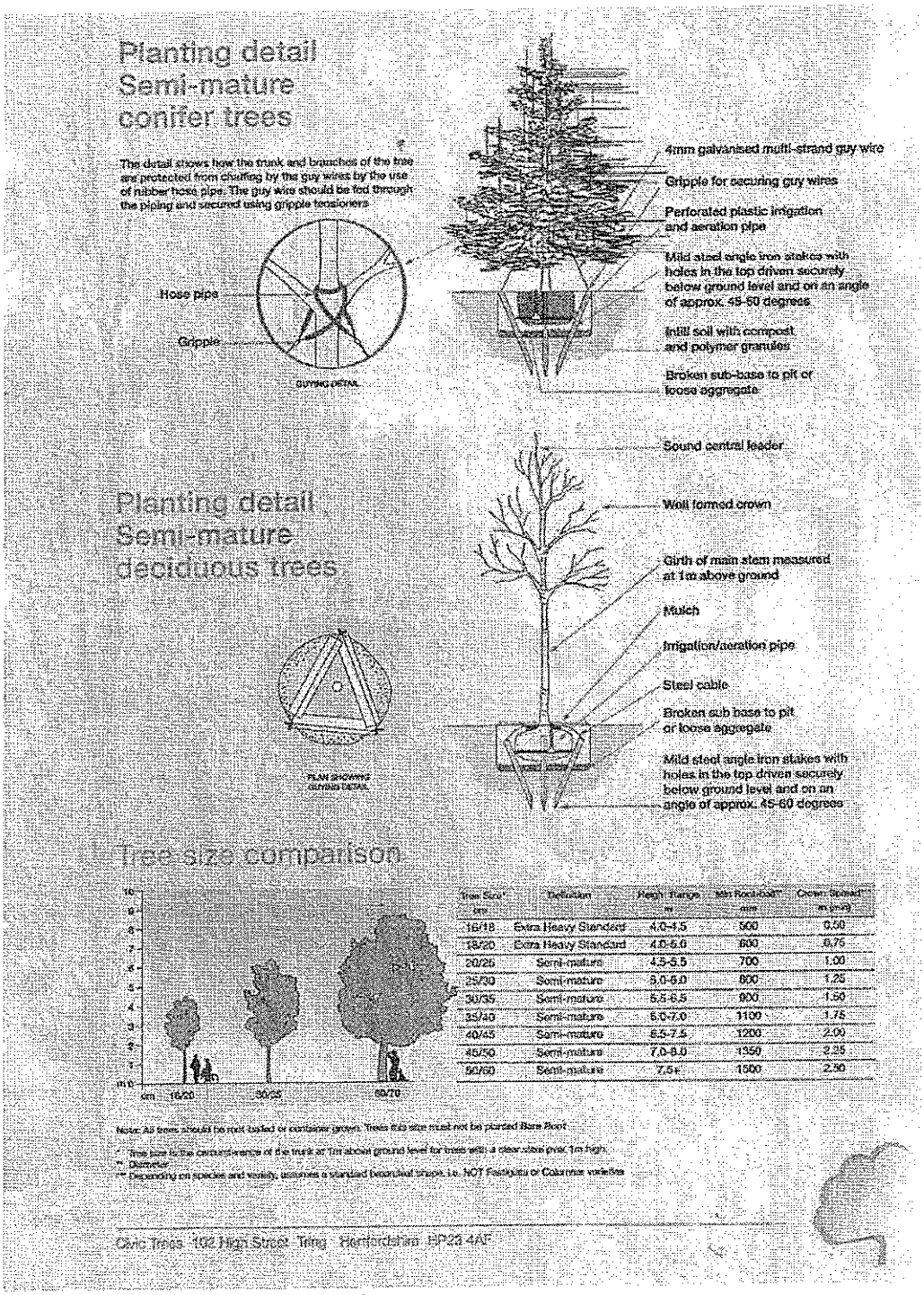
Successful establishment of trees will depend on:

1. The planting site being properly prepared, with suitable drainage and being compatible with the chosen tree species.
2. The trees being specially grown to produce semi-mature stock, being healthy and having been correctly lifted, stored and transported as relatively fragile living organisms.
3. The planting being done correctly and in the right season, relative to the growing medium, followed by proper aftercare.

growing since 1963

Civic Tree Care Limited – Registered No [illegible]
Civic Trees (Tree Movers) Limited – Registered No [illegible]
Civic Trees (Nurseries) Limited – Registered No [illegible]
Newman Tree Movers Limited – Registered No [illegible]
BALI
Registered in England – VAT No [illegible]

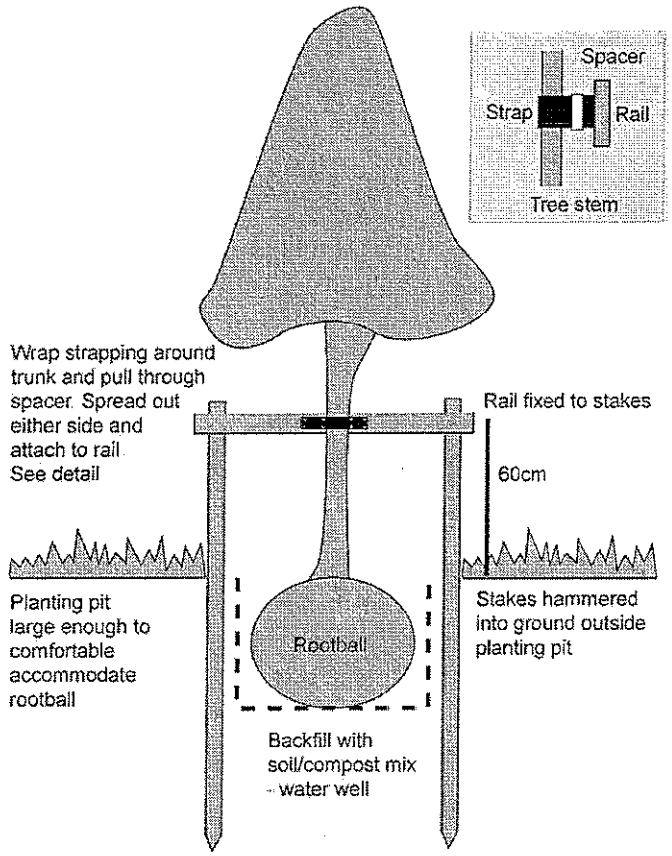
Illustrative specification for the planting of tree stock – (Semi Mature)



Illustrative specification for the planting of tree stock – (Heavy Standard and Standard)

Dig a hole twice as wide as the size of the root system and just deep enough so that when the root-system rests on the bottom of the hole the levels of the surrounding ground and top of the root-system are the same.

NB. In wet, heavy or clay soils, it is desirable that the root-system is planted up to 15cms above the surrounding soil level and the excavated soil is mounded up to the newly created level to encourage rooting into an area less likely to suffer water-logging.



Remove the container from pot grown plants, but in the case of root-balled plants leave the hessian and wire packaging intact below the ground to maintain the integrity of the root-ball, and to give the plant a better start with less disturbance – the fabric and wire will rot away in due course. You should pull back any fabric and wire at the surface after planting to give the plant unobstructed access to surface water

In the case of tree planting use stakes and tree-ties to give the new tree support until it becomes established. The stake should be driven into firm ground to the outside of the planting pit. Do not drive the stake into the root-system as this will damage the roots. Check and adjust tree-ties regularly to accommodate growth.
Back fill the hole with a mixture of one part compost and two parts soil, making sure that the plant is firmly held in by the soil. Watering immediately after planting will remove air pockets; this will reduce the risk of disease, as well as giving the plant a drink.

The roots of your plant need air and water so check soil conditions regularly. During the first growing season ensure that the plant does not dry out. However, do not over water as this will also damage the plant. Do not over feed in the first year as this will result in too much canopy growth for the new roots to support.
Keep the area around the plant free from weeds by mulching with bark or compost to a depth of 5cms.

APPENDIX 12

Inserted table of arboricultural site supervision:

Arboricultural Action	Programme of Action	Extent of arboricultural input	Nature of Supervision	Date of inspection	Signed off (Council Use)
Meeting with construction team to discus tree protection and any emerging design issues that may affect trees	Before any site activities start	• Meeting with relevant members of the developers team to explain the extent of the tree constraints, i.e. architect, site manager, engineer, landscape architect, etc • Review working space requirements to consider barrier and ground protection adjustments to improve site functionality • Review drainage proposals and identify conflicts with RPAs • Review any post consent layout changes that may affect trees • Identify any potential conflicts and work towards resolutions • Preparation of draft working drawings if necessary			
Updated tree protection proposals in the context of the above meeting for discussion at pre-commencement meeting	Before any site activities start	• Preparation of revised plans and specifications			
Briefing landscape architect on restrictions imposed on new landscape design by RPAs	Before landscaping design is finalised	• • Supply appointed landscape architect with a plan of the RPAs, a description of the restrictions that apply and details of agreed new tree planting • Review final landscaping plans to make sure there are no conflicts between tree protection and landscaping	letter / email and plan to landscape architect		
Pre-commencement site meeting with supervising arboriculturalist, site manager and council tree officer	Before any site activities starts or once tree protection measures have been installed	• Meeting on site • Review any updated proposals • Confirm tree protection measures are acceptable if already installed	Site meeting and letter / email		
Tree works carried out	Before protective measures are installed	• Meeting with contractor if necessary at the discretion of supervising arboriculturist	Site meeting and letter / email		

Arboricultural Action	Programme of Action	Extent of arboricultural input	Nature of Supervision	Date of inspection	Signed off (Council Use)
Finalising tree protection proposals and installation for agreement by council	Before any heavy machinery enters the site	• Preparation of final plans and specification for agreement by the council • Provide photos of relevant aspect of installed tree protection measures • Meeting with contractor to finalise specification and locations before installation with a further visit on completion to verify correct installation, at the discretion of the arboricultural consultant	Site meeting and letter / email		
Demolition	After protective measures are installed	• Meeting with contractor if necessary, at the discretion of the arboricultural consultant	Site meeting and letter / email		
Construction of the new development and Installation of new services	At the discretion of the developer	• Meeting with contractor for briefing before work starts with further visits as necessary , at the discretion of the arboricultural consultant	Site meeting and letter / email		
Removal of barriers and ground protection	When construction activity has been finished	• Meeting with contractor for briefing before work starts	Site meeting and letter / email		
Removal of surfacing retained as ground protection	When construction activity has been finished	• Meeting with contractor for briefing before work starts	Site meeting and letter / email		
New Tree planting	After barriers and any ground protection have been removed	• Arboricultural consultant checks plant compliance with specification and oversees site preparation and planting	Site meeting and letter / email		
General Landscaping	After barriers have been removed and new tree planting has been finished	• Meeting with contractor for briefing before work starts with further visits as necessary, at he discretion of the arboricultural consultant	Site meeting and letter / email		
Tree planting maintenance	For a period of 3 – 5 years after planting until successful establishment confirmed by council	• Supervision provided by supplier and planting contractor	Letters / emails by planting contractors after each maintenance visit		

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact me.

Signed

Gary Marsden

Gary Marsden FDSc Arb M.Arbor.A
Professional Member of the Arboricultural Association (AA)
Member of the Consulting Arborist Society (CAS)

For and on behalf of ***GM TREE CONSULTANTS***

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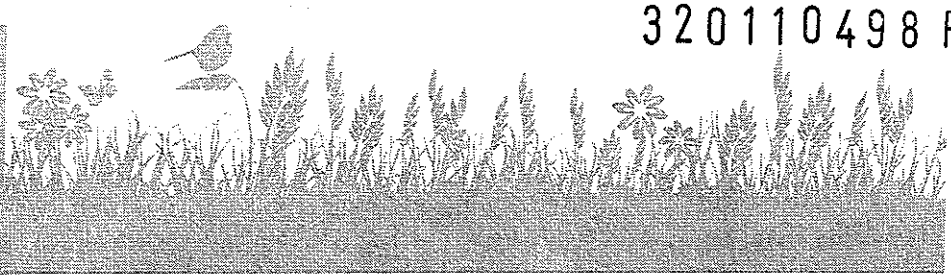
SIMPLY ECOLOGY



The Eaves, Wiswell, Lancs BB7 9BZ

Extended Phase 1 Survey

Simply Ecology

June 2011

For

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HG1 5AW

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CONTENTS **PAGE**

This report has been prepared by Simply Ecology Consultants with all reasonable skill, care and diligence, within the terms of the Contract with the Client. The actions of the surveyor on site and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Institute of Ecology and Environmental Management. (www.ieem.org.uk).

INTRODUCTION

1.1 Background Information

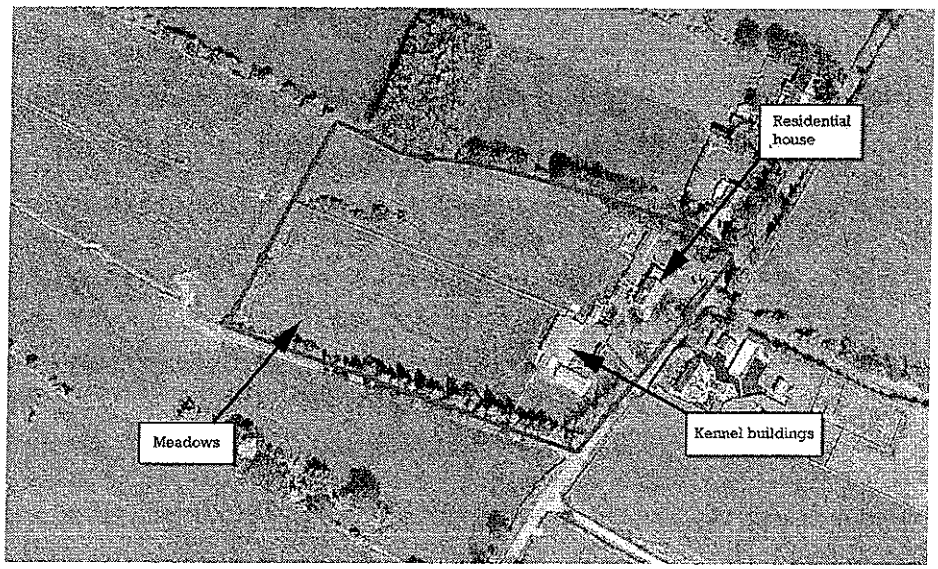
1.1.1 Simply Ecology Consultants were commissioned by Wighton Jagger Shaw Architects Ltd in May 2011 to undertake an ecological assessment of land at The Eaves, Pendleton Road, Wiswell, Lancashire BB7 9BZ (O/S Grid Reference SD751380). See Plan 1: The Site Location.

1.2 Site description and Proposed Works

1.2.1 The site is accessed via Pendleton Road on the outskirts of Wiswell village. This is a rural area approximately 1km north east of the village. The current use of the site is as a boarding kennel, with a residential house and its gardens. Behind these buildings are two fields (See Plate 1). Surrounding the site is agricultural land. The entire site is approximately 112m x 190m and covers an area of 2.13ha.

1.2.2 The survey described in this report was commissioned to inform plans for the demolition of the current house and construction of a new house on the same site. This requires up-to-date survey data on habitats and protected wildlife present at the site (see Plan 2 for site proposal). The survey encompassed the entire property.

Plate 1: Aerial view of the site showing locations of buildings and meadows



1.3 Aims

1.3.1 The aims of this ecological assessment were to:

- Determine the nature conservation value of the site and surrounding area.
- To confirm the presence or absence of protected species, such as badgers, bats, etc) within the proposed development site.
- To enable the client to comply with legislation afforded to protected sites and species.
- To make nature conservation recommendations.

1.3.2 To achieve this, an extended phase 1 habitat survey of the site was undertaken on 24th May 2011. This submission presents the results of the ecological surveys at the site.

2.0 Statutory and Planning Context

2.0.1 The client is advised that many species of British wildlife are legally protected. The following section provides a brief overview of the protection afforded to species commonly encountered during development. The Recommendations at the end of this report will advise as necessary, but it is also useful for the client to have an understanding of the legal protection as this helps to ensure that the law is complied with.

2.1 Badgers

2.1.1 Badgers are protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) (WCA), and The Protection of Badgers Act 1992. It is illegal to:

- Kill, injure, take, possess or cruelly ill-treat a badger or to attempt to do so;
- Interfere with a badger sett by damaging or destroying it;
- Obstruct access to or any entrance of a badger sett;
- Disturb a badger when it is occupying a sett

2.1.2 A badger sett is "any structure or place that displays signs indicating current use by a badger. Natural England, the Government's statutory nature conservation body, classifies a sett as active if it has been occupied within the last 12 months.

2.1.3 Operations that might cause disturbance of an active sett entrance can be carried out under licence from Natural England. If any badgers are found during the course of the survey, this will be highlighted in this report.

2.2 Birds

2.2.1 All wild birds are protected against killing or injury under The WCA 1981 (as amended). This protection extends to birds nests during the breeding season, which makes it an offence to damage or destroy nests or eggs. Birds that are listed on Schedule 1 of the Act receive additional protection against intentional or reckless disturbance during the breeding season. This makes it an offence to disturb these species at or near to their nesting site.

2.3 Protected Mammals and Protected Reptiles (includes water vole, red squirrel, slow worm, common lizard and others)

2.3.1 A variety of British mammals and reptiles also receive protection under The WCA 1981 (as amended). Schedule 5 of The WCA lists animals that are protected. The degree of protection varies. Water voles and red squirrel are examples of species with full protection. The Act makes it an offence to intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places.

2.3.2 All British reptiles are all protected. The commoner species such as common lizard and slow worm are protected only from unlawful killing. In practice this requires a reptile protection scheme before implementing a planning permission. No specific licence is required. The rarer reptiles, including smooth snake and sand lizard are fully protected and any works affecting them can only be carried out if a Natural England licence has been issued.

2.3.3 If any protected species are found during the course of the survey, this will be highlighted in this report.

2.4 European Protected Species (includes, bats, great crested newts, otter and others).

2.4.1 The client is advised that all bats, great crested newts and otter are European Protected Species (EPS). These EPS receive the full protection of the Wildlife and Countryside Act 1981 (as amended) (Section 9, Schedule 5). In addition, these EPS are also protected under European legislation which is implemented in England via The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (Regulation 39). A full list of EPS is provided in Schedule 2 of the Regulations.

2.4.2 If both national and international legislation are taken together, the legislative protection afforded to the species makes it an offence to:

- Intentionally/deliberately kill, disturb, injure or capture them.
- Intentionally or recklessly damage, destroy or obstruct access to any breeding site or resting place.
- Possess or control any live or dead specimen or anything derived from a European Protected Species.

2.4.3 If an activity is likely to result in any of the above offences, derogation from the legal protection can be issued in the form of a European Protected Species licence issued by Natural England. Licences for development purposes are issued under the Habitat Regulations 1994 (as amended) and only allow what is permitted within the terms and conditions of the licence. If any EPS are found during the course of the survey, this will be highlighted in this report.

2.5 Planning Considerations

2.5.1 For activities requiring planning permission, the presence of protected species, such as those listed above, is a material consideration which must be fully considered by the Local Authority when granting planning permission. Local Authorities have been issued with Planning Policy Statement 9 (ODPM Circular 06/2005) which provides guidance on the interpretation of the law in relation to wildlife issue and development.

2.5.2 Where a development is proposed which may affect a protected species, PPS9 advises that alternative sites should be considered before granting planning permission that may affect a protected species. The planning authority may require mitigation or compensatory proposals in order for an activity to be granted planning permission.

3.0 SURVEY METHODOLOGY

3.1 Extended Phase 1 Survey

3.1.1 The Phase 1 survey was undertaken by Jason Reynolds MSc MIEEM and Colin Barnes on 24th May 2011. The survey followed the Phase 1 habitat survey methodology (NCC, 1990, a standard technique for recording and mapping habitats. During the Phase 1 survey the presence or potential for presence of protected species was recorded and assessed.

3.1.2 The survey involved walking the whole site, mapping and describing different habitats (for example: woodland, grassland, scrub). Evidence of fauna and faunal habitat is also recorded (for example droppings, tracks, or habitat such as ponds for breeding amphibians). The methods used for ecological survey are in accordance with those established and generally accepted methodologies for field survey, as published by the professional body, the Institute of Ecology and Environmental Management (IEEM).

3.2 Invasive Alien Plants

3.2.1 During the Phase 1 habitat survey, observations of invasive alien plants listed under Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) were made. The search was limited to giant hogweed (*Heracleum manegazzianum*), Japanese knotweed (*Fallopia* japonica) and Himalayan balsam (*Impatiens glandulifera*).

3.3 Personnel

3.3.1 All surveys were carried out by Jason Reynolds MSc MIEEM, who conducted his MSc thesis at the University of Aberdeen on the foraging preferences of the *Pipistrelle*. Jason runs his own ecological consultancy Simply Ecology and is an experienced botanist with a broad range of ecological and conservation knowledge gained over 15 years working as a Conservation Officer for both statutory and charitable conservation bodies, including English Nature, Cumbria Wildlife Trust and the Environment Agency. Jason holds protected species survey licences for white-clawed crayfish and great crested newt. Colin Barnes, who studied ecology and habitat conservation management at Myerscough College and has worked as an assistant reserves manager for Natural England, assisted him. He has been working with Simply Ecology since 2010.

3.4 Timing and Constraints

3.4.1 The Phase 1 habitat survey was undertaken on 24th May 2011. This is during the early summer, and is the ideal time to record habitats as plants can be recorded and ecological value/quality of a site determined according to the habitats encountered. Similarly, the timing posed no problems for the protected species assessment, and no constraints were encountered.

4.0 Phase 1 Survey Results

4.1 Habitat Results

4.1.1 The site covers 2.13ha. The predominant habitats were the semi-improved grassland fields to the west of the existing house and garden planting. There were scattered trees across the site and improved grassland adjacent to the buildings. The habitats at the site are very common and widespread. A Phase 1 Habitat Plan and Target Notes (hereafter referred to as TN) are included on Plan 3.

4.1.2 The following habitats were recorded at the site (In no particular order):

- Semi-improved neutral grassland
- Improved grassland and ruderals
- Garden planting
- Hedges
- Scattered trees

Semi-improved Neutral Grassland

4.1.3 The majority of the site consisted of semi-improved neutral grassland (TN1) (see Plate 2). The grassland was composed of the following species: sweet vernal grass (*Anthoxanthum odoratum*), Yorkshire fog (*Holcus lanatus*), cock's foot (*Dactylis glomerata*), meadow foxtail (*Alopecurus pratensis*) and red fescue (*Festuca rubra*) with lesser amounts of annual meadow grass (*Poa annua*) and common bent (*Agrotis capillaris*). Forbs included both creeping buttercup (*Ranunculus repens*) and meadow buttercup (*Ranunculus acris*), with white clover (*Trifolium repens*), broad-leaved dock (*Rumex obtusifolius*), common field speedwell (*Veronica persica*), common mouse-ear (*Cerastium fontanum*), common chickweed (*Stellaria media*), common sorrel (*Rumex acetosa*), dandelion (*Taraxacum agg*) and pignut (*Conopodium majus*). Occasional

common ragwort (*Senecio jacobaea*), betony (*Stachys officinalis*), field horsetail (*Equisetum arvense*) and cow parsley (*Anthriscus sylvestris*) were also present. Around the margins of the site were areas of hogweed (*Heracleum sphondylium*), cleavers (*Gallium aparine*), common nettle (*Urtica dioica*), red campion (*Silene dioica*) and scattered cuckoo flower (*Cardamine pratensis*). Along the southern edge of the field (TN2) the vegetation had become rank and scrubby and included extensive Himalayan balsam (*Impatiens glandulifera*). Another patch of Himalayan balsam was growing in the southwest corner (TN3).

Plate 2: The semi-improved grasslands which was present in both fields (looking west).

4.1.4 Within the grassland were a few scattered mature hawthorns (*Crataegus monogyna*) (TN4) (See plate 3), elder (*Sambucus nigra*) and laurel (*Prunus laurocerasus)* which probably marked the line of a now defunct hedgerow (TN5). These were growing by a post and wire fence which now divides the fields.

Plate 3: The scattered hawthorns in the west of the field.

4.1.5 Along the southern boundary of the grassland (TN2) were some small bay (*Laurus nobilis*) and hawthorns. Just outside the survey site boundary there was a mature tree line consisting largely of sycamore (*Acer pseudoplatanus*) and included Scots pine (*Pinus sylvestris*), larch (*Larix decidua*), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*) silver birch (*Betula pubescens*) and cypress (See plate 4).

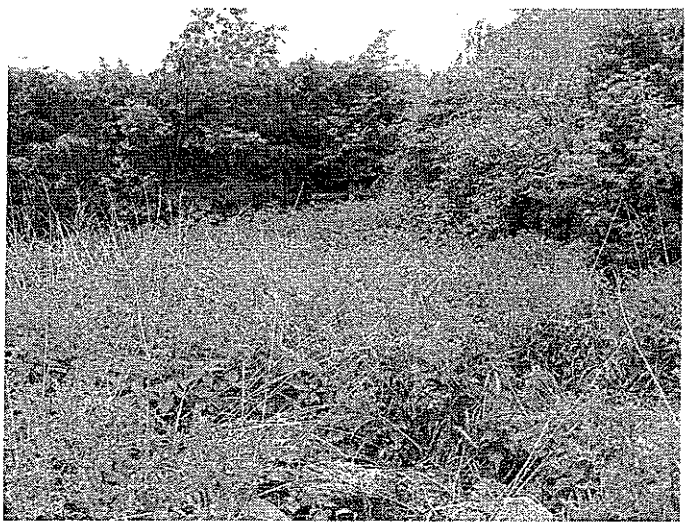
4.1.6 In the south east of the grassland was a small area of young planted Norway spruce (*Picea abies*). (TN6). The ground cover in this area consisted of cleavers, creeping buttercup and meadow foxtail. There was also some Himalayan balsam growing in this area. (See plate 4)

Plate 4: The southern boundary with young spruce in foreground.

Improved grassland and Ruderals

4.1.7 In the south east corner of the survey site was an area of improved grassland and ruderals (TN7). The species found here are predominantly perennial rye-grass (*Lolium perenne*), common couch (*Elymus repens*), meadow foxtail, cock's foot, broad-leaved dock, dandelion, ribwort plantain (*Plantago lanceolata*) and red clover (*Trifolium pratense*). There were also some stands of dense common nettle ear to the kennels (See plate 5). Again Himalayan balsam was present around the perimeter of the area.

Plate 5: The stand of nettles near the kennels.

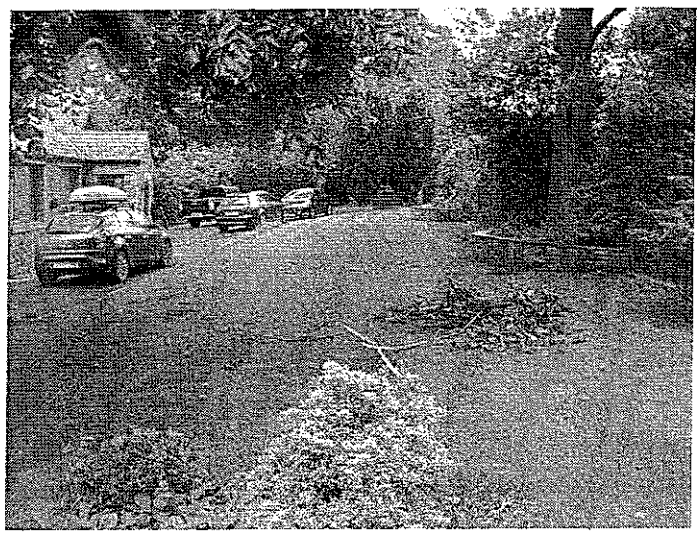


Garden planting

4.1.8 Surrounding the residential property at the eastern edge of the site was an area of formal garden planting (TN8). This consisted of lawn sown with white clover, common bent (*Agrostis capillaris*), perennial rye-grass and chewings fescue (*Festuca rubra*

commutata). These are all common lawn species. Throughout the garden were numerous ornamental plant species. (See plate 6)

Plate 6: The lawn showing the front of property hedgerow, scattered mature trees and copper beech hedgerow.



Scattered trees

4.1.9 Throughout the garden and around the site perimeter were a number of scattered trees. To the front and south side of the house were mature large-leaved lime (*Tilia platyphyllos*) (TN9), ash (*Fraxinus excelsior*) and sycamore. (See plate 6) To the rear was a group of fruit trees and some ornamental cypresses.

Hedgerows

4.1.10 There was a mature hedge across the front of the property consisting of hawthorn, laurel and hazel (*Corylus avellana*) (TN11) (See plate 6). In the garden was a copper beech (*Fagus silvatica 'Purpurea'*) hedge (TN12) and by the driveway leading to the kennels was a hedge of hawthorn and ash (TN13). There were also ornamental cypress hedges throughout the garden.

4.2 Protected Flora

4.2.1 Of the plants present on the site, no notable, rare or legally protected species were recorded during the site survey.

4.3 Invasive Species

4.3.1 Extensive stands of Himalayan balsam were present, predominantly along the southern area of the survey site.

5.0 Protected Species Results.

Bats

5.0.1 There was no need to carry out a building inspection for bats during this survey as bat surveys had been previously undertaken by Earthworks and Environmental Design (May 2011). The EED survey found no evidence of bats in the buildings on the site.

5.0.2 As part of the survey carried out by Simply Ecology the potential for bats to roost in the trees was also assessed. It was found that the mature ash, sycamore and large-leafed lime trees at the front of the property were mature enough to provide roosting opportunities for bats and had features such as holes and crevices. A brief examination

from ground-level did not find evidence of bat use, however this was not an exhaustive bat survey and so it is possible that bats are using some of the trees.

6.0 Conclusions and Recommendations

6.0.1 The main habitats present on the site comprised a large areas of semi-improved grassland with further smaller areas of improved and amenity garden grassland. All of these are very widespread and common habitats with limited ecological value. As shown on Plan 2, the majority of these habitats will not be affected by the development proposals. Under these proposals the loss of small areas of garden planting will be compensated by the reversion of areas which are currently kennels and hardstanding into garden. There were some mature trees that have potential for bat roosts, and recommendations for these follow. No additional evidence for the presence of protected, rare or notable species was found during the ecological survey undertaken.

Bats

6.0.2 The accompanying building survey and emergence surveys for bats which were undertaken by Earthworks and Environmental Design (May 2011), did not find any evidence of roosting bats. During this survey three mature trees to the front of the house were identified as all having some potential to support roosting bats. It is noted from the site proposals that it is intended to retain these trees (See Plan 2) and that the EED bat survey found few signs of bat activity in the area. It is therefore advised that no impacts upon bats are predicted. However, should these proposals subsequently be modified to include the felling or pruning of these tress, that the Appointed Ecologist should be contacted in order that a thorough tree survey be carried out to establish whether bats are present. No tree work should be carried out prior to such a survey. **Reason:** To ensure that no offences are committed under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Species and Habitats Regulations 2010.

Invasive species

6.0.3 The non-native invasive species Himalayan balsam (*Impatiens glandulifera*) was present within very close proximity to the proposed development area. It is quite possible that these areas may be affected by vehicular movements during the demolition process. The balsam will require temporary fencing for the duration of the construction period to ensure no disturbance. Alternatively any balsam within the construction area will require removal and appropriate disposal to ensure construction and operational activities (for example earth works and vehicular movements) do not cause the spread of this invasive species. Possible control measures include chemical treatment using glyphosate or 2,4-D amine, cutting, mowing, strimming or pulling (if plants are shallow-rooted). Chemical treatment should be applied in early spring when the plant is actively growing. Plants that are to be controlled by cutting, mowing or strimming should be removed to ground level before the flowering stage in June. Cutting earlier than this may promote greater seed production and should therefore be avoided. Cutting should be repeated annually until no further growth occurs. All arisings should be disposed of by burning or composting in a self contained area (N.B. resultant compost should not be used elsewhere). **Reason:** The client is advised that The Wildlife and Countryside Act 1981 (as amended) makes it an offence to plant or otherwise cause Himalayan balsam to grow in the wild.

Breeding birds

6.0.4 It is recommended that if any tree or hedge removal is required, all clearance should be undertaken outside of the bird nesting season. If this is not possible, a suitably qualified ecologist must be present to oversee all vegetation removal. **Reason:** To ensure that no offences are committed under The Wildlife and Countryside Act 1981 (as amended). The

bird-nesting season is generally regarded to extend between March and August inclusive.

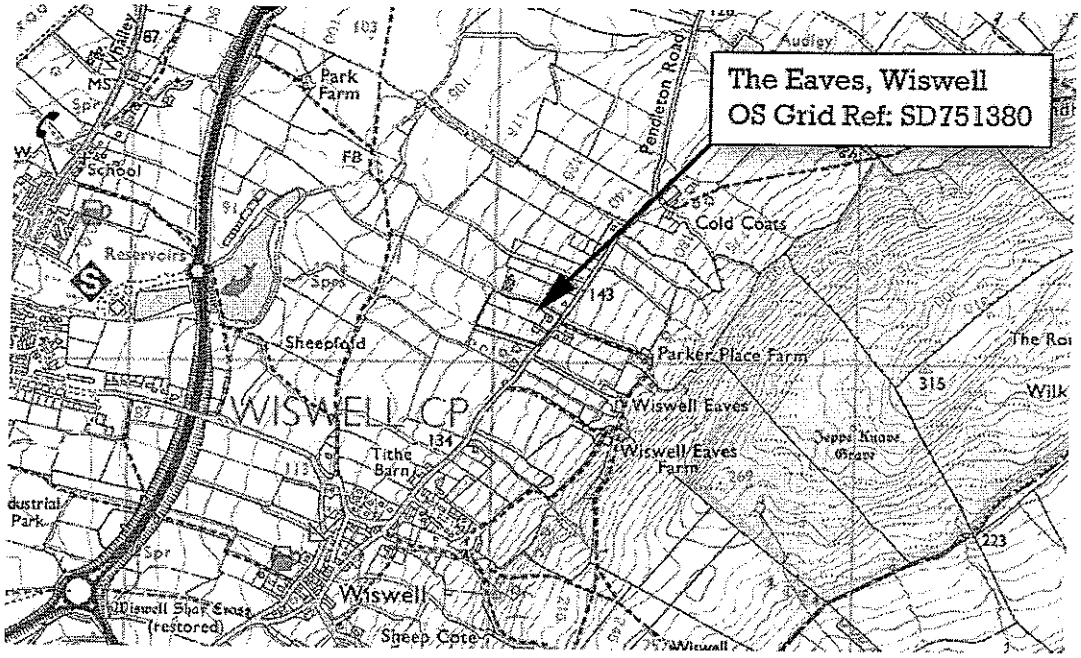
7.0 REFERENCES

BAT CONSERVATION TRUST (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

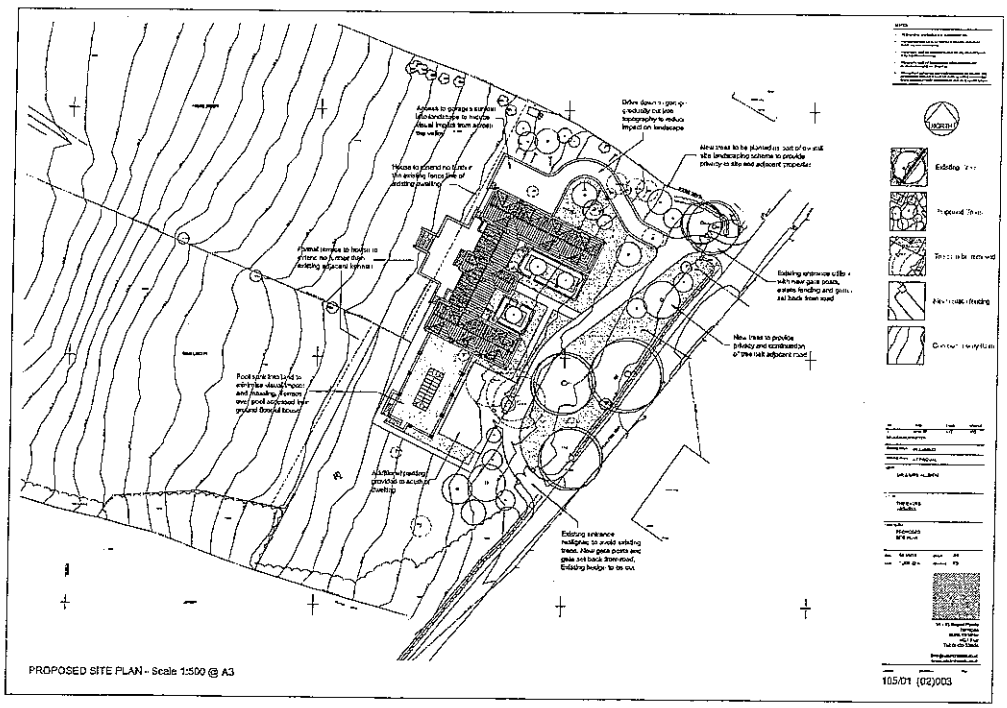
NCC (1990) Handbook for Phase 1 Habitat Survey. JNCC, Peterborough.

Plans

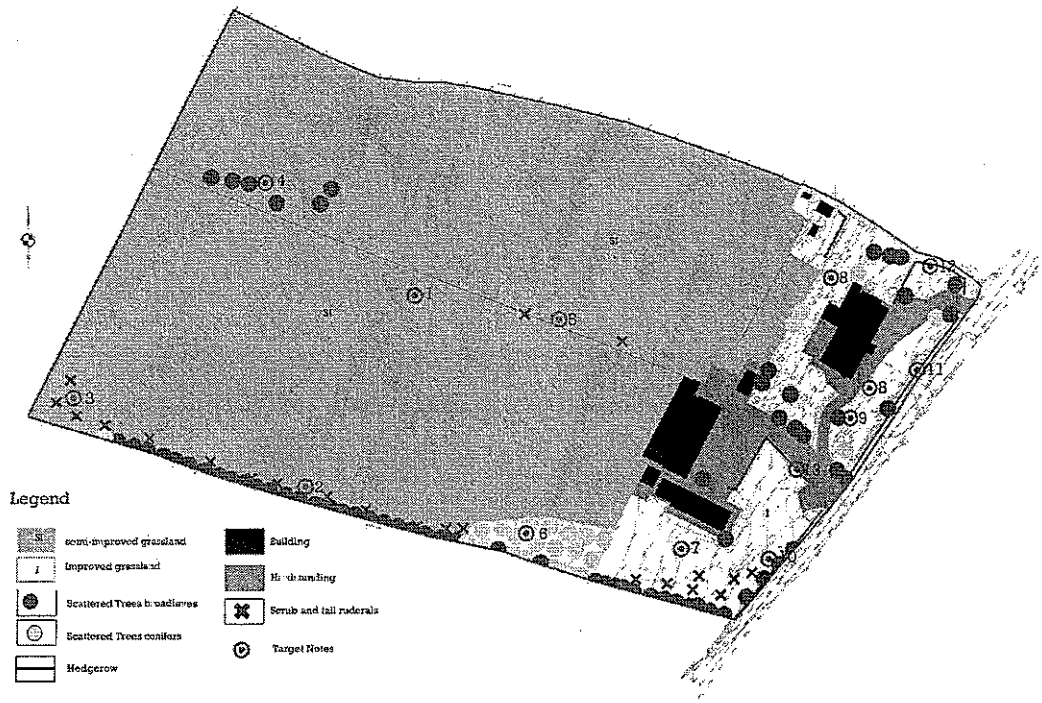
Plan 1: Site Location Plan.



Plan 2: The site development proposals



Plan 3: Phase 1 Habitats at the site.



earthworks environmental design

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3201104 98 P

FAO: Mr J. Riley

Wighton, Jagger, Shaw Architects Ltd
14 – 15 Regent Parade
Harrogate
North Yorkshire
HG1 5AW

25 May 2011

Ref: B 943

Dear Mr Riley

Protected Species Survey: The Eaves, Pendleton Road, Wiswell, Clitheroe, Lancashire BB7 9BZ

You have requested a protected species survey on behalf of your client Mr B. Allison, as a condition of a planning application to Ribble Valley Borough Council (RVBC) for demolition of a detached house and cattery / kennel premises prior to re-development of the site.

The local authority requires an appraisal of the impact of the proposed development on all protected species in accordance with PPS9, in addition to mitigation procedures designed to protect bats and their roosts and ensure there are *'no adverse effects on the favourable conservation status of a bat population'*.

A scoping survey and daylight inspection was undertaken on Tuesday 10 May; this was followed by an evening emergence survey on Thursday 19 May 2011.

The key conclusions of the attached survey report are as follows:

There is no evidence of bat roosting activity associated with this property.

The proposed scheme is unlikely to cause disturbance to roosting bats or result in the loss of a nursery roost or hibernaculum, or cause injury or death of a European Protected Species (EPS).

Additionally, there is no evidence of barn owl nesting activity.

Your attention is drawn to the mitigation guidelines at the end of the report; it is the developer's responsibility to ensure that procedures are in place to mitigate for the 'potential' impact on bats and wild birds during the proposed building works.

Please note, I do not supply a copy of the report to the local planning authority, therefore it is your responsibility to forward a copy to RVBC in support of the planning application.

Finally, I attach further information on 'protected species and the planning process' with some brief notes regarding 'bats and the law' (Appendix A).

Yours sincerely

David E. Fisher

David Fisher
(EED)

PROTECTED SPECIES SURVEY

Property at: The Eaves, Pendleton Road, Wiswell, Clitheroe, Lancashire, BB7 9BZ (NGR: SD751381)

1 Survey methodology

1.0 A daylight scoping survey and site inspection was carried out on Tuesday 10 May 2011 between 09.45 and 11.15. The weather at the time of the survey was mild, dry and bright (maximum temperature: 17°C; cloud cover: lightly overcast 7/8 octas; wind: light to moderate SW wind) providing optimal survey conditions for a building and site inspection.

1.1 An evening (dusk) emergence survey was also carried out on Thursday 19 May 2011 between 20.30 and 22.45. The weather during this survey was mild, dry and clear (temperature range: 14°C - 11°C; cloud cover: light cloud 2/8 octas). Sunset time: 21.12 (Preston). The survey was carried out approximately 40 minutes before sunset and continued for more than 90 minutes after sunset.

1.2 The aim of a bat survey is to make an assessment of the potential value of the site for European Protected Species and to establish whether bats (chiroptera) or other protected species have been active within those areas of property that will are likely to be affected by the proposed work. The survey included an internal and external assessment of the barn including the first floor loft areas above the shippon in addition to an adjacent 'Nissen hut' nearby.

1.3 A desk study and local data search has been undertaken to support the survey findings; the search includes bat records from within 1km of the property using local, regional and national databases.

1.4 The survey methodology follows the monitoring guidelines recommended by the Bat Conservation Trust *(BCT – Bat Surveys, Good Practice Guidelines, 2007),* Natural England *(Survey Objectives, Methods and Standards as outlined in the Bat Mitigation Guidelines, 2004), and Survey and Monitoring Methods, Ch 3, (Bat Worker's Manual, JNCC, 2004).*

1.5 Non-intrusive survey methods were used to assess the use of the property by bats. The search was made using high-powered lamps (Clu-lite 1,000,000 candle power), close-focussing binoculars (Leica Trinovid) and digital camera (Kodak MD41) and 900mm flexible endoscope (ProVision 300) to view all likely areas of the buildings for the presence of bats, ie. droppings and urine spots, grease stains or feeding remains such as discarded moth and butterfly wings, beetle elytra and other insect fragments typically found near regularly used feeding perches.

1.6 Evening emergence and dawn re-entry activity was monitored using ultrasonic bat detectors. Three types of device were used to record echolocation calls: (I) Batbox Duet - (heterodyne and frequency division) and (2) Anabat SD2 CF detector with a PDA – (HP iPAQ hx2490 pocket PC using Anabat software); headphones were used throughout the survey; (3) Pettersson D230 (heterodyne and frequency division) with Edirol R-09HR digital recorder.

1.7 Two surveyors were positioned along the south and west sides of the cattery; a third surveyor was located within the garden of the house to observe the south, east and west elevations of the house.

1.8 Recommended survey methods were used to assess the use of the building by barn owls and other nesting birds including searches for evidence such as droppings, pellets, discarded prey items, feathers and nest debris. Barn owl guidelines are those recommended by Natural England, *Barn Owls on Site – A guide for developers and planners, March 2002.*

2 Personnel

2.0 Both surveys were carried out by David Fisher (Earthworks Environmental Design) - an experienced ecological consultant with more than 25 years experience of bat ecology, mitigation schemes and field survey work and a Natural England bat licence holder since 1990; current Natural England licence No: 20103384, (Conservation, Science and Education).

2.1 The evening emergence survey was undertaken by Gemma Howard and Theresa Stewart, both are qualified and experienced full time ecologists with considerable experience in bat survey techniques.

3 Description of the property

3.0 The detached bungalow has stone and block cavity wall construction; the pitched slate roof has two dormer windows and several Velux windows (figures 1 to 3). Internally there are no enclosed roof voids and the rooms are open to the eaves.

3.1 The cattery and kennel buildings occupy two former agricultural units; the buildings comprise two linked single story buildings with L-shaped plan (figures 6 and 7). The kennel (building 'A') has a poured concrete wall construction with internal block work; the pitched steel-framed roof is clad with a box section alloy roof laid over the original corrugated cement asbestos sheet roof and there is an enclosed void above the suspended ceilings (figure 8). The void is cold dry and draughty. Externally the building has uPVC fascia soffits and all windows and doors are double-glazed.

3.2 The cattery (Building 'B') has rendered block work wall construction with pitched roof (steel and timber frame roof). The roof is clad with cement asbestos sheets and there is an enclosed roof void above the suspended ceilings; the void is not insulated and is relatively cold, dry and well-ventilated (figure 9). Externally the gable apex wall is partly clad with corrugated cement asbestos sheeting.

3.3 Between these units are two smaller lean-to structures with block work walls; these structures have box alloy mono-pitch roofs and are linked to the main buildings by a clear laminate sheet roof.

3.4 Additionally there is a single story timber building with pitched roof (figure 10); this is currently used as a reception area. The building has a timber frame, tongue and groove walling and bitumen felt roof.

4 Site location and habitat description

4.0 The property is located at SD751381 between the villages of Wiswell and Pendleton at an elevation of 140m.

4.1 The site is surrounded by open countryside with extensive grazing land and permanent pasture nearby. The property occupies gently rising ground rising to acid moorland at 315m (Jeppe Knave) approximately 1km to the east of the site.

4.2 There are no extensive woodlands or areas of open water within 200m of the building; the surrounding landscape is open to the prevailing west wind and the site provides sub-optimal feeding, foraging and commuting habitat for bats.

4.3 The nearest standing open water is 0.75km west of the site at Barrow Lodge (Pendle View Fishery).

4.4 The nearest large woodland is 1.3km south of the site at Deer Park Wood; there is moderate connectivity to other habitats within the wider landscape.

4.5 There are no designated nature conservation sites immediately adjacent to the property – ie. Sites of Special Scientific Interest (SSSI), Biological Heritage Sites (BHS), National Nature Reserves (NNR's), Local Nature reserves (LNR's) or Regionally Important Geological and Geo-morphological Sites (RIGS).

5 Proposed development

5.0 It is understood the proposed scheme requires demolition of the existing buildings prior to redevelopment of the site as a single residence.

4.0 Existing building (images)

Fig 1: The Eaves (rear elevation)

Fig 2: Front (east) elevation

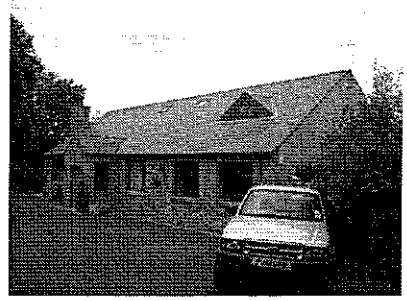

Fig 3:

Fig 4:

Fig 5: rear (west) elevation

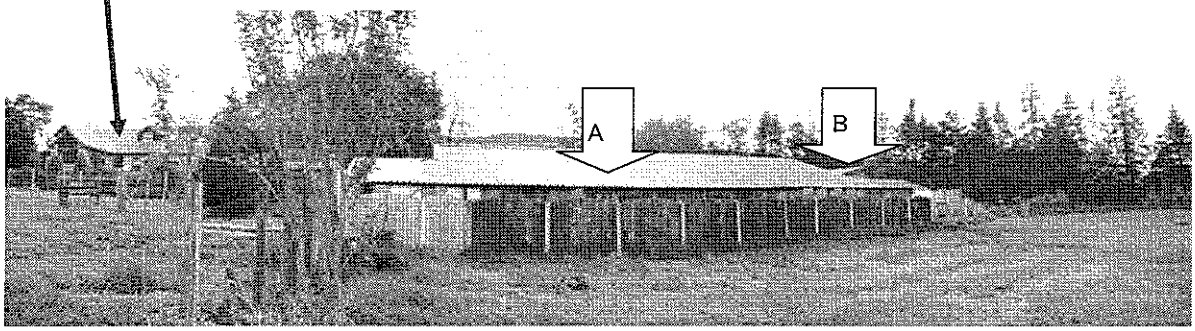

Fig 6: Rear view of kennels (A) and cattery (B) at SW elevation; the view also shows The Eaves (house) on far left

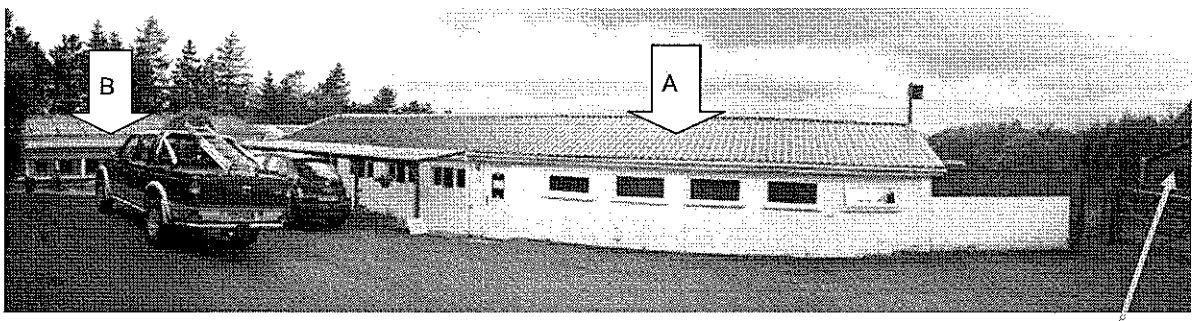

Fig 7: Front view of kennels and cattery (NE elevation)

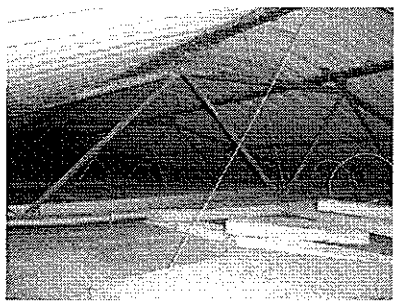

Fig 8: roof void building A

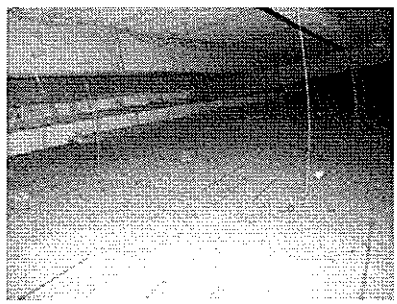

Fig 9: roof void building B'

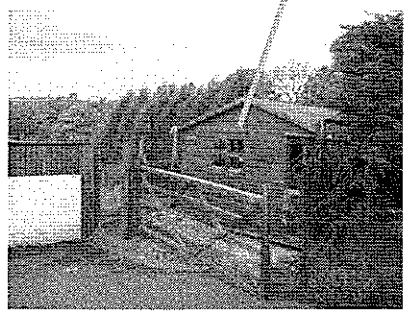

Fig 10: reception / office

5 Desk study and data search (SD73 and SD74)

5.0 A targeted desk study was undertaken to identify the presence of protected species (bats) including notable species records for the area.

5.1 NBN Gateway (10km squares SD73 and SD74) uses mammal datasets *(Terrestrial mammals - Chiroptera)* provided by the Bat Conservation Trust *(National Bat Monitoring Programme – Colony Counts Survey and Daubenton's Bat Waterway Survey)*, Natural England's Bat Sites Inventory for England, Mammal Records for Britain (Mammal Atlas 1993 with additions), and some local and regional biological record centres.

5.2 Based on species records gathered from additional sources, the following species are known to be present within the district where suitable habitat exists:

Daubenton's bat	(*Myotis daubentonii*)
Natterer's bat	(*M. nattereri*)
Whiskered	(*M. mystacinus*
Brandt's bat	(*M. brandtii*)
Brown long-eared bat	(*Plecotus auritus*)
Common pipistrelle	(*Pipistrellus pipistrellus*)
Soprano pipistrelle	(*P. pygmaeus*)
Noctule bat	(*Nyctalus noctula*)

5.3 Previous (protected species) surveys have not been carried out at this property.

5.4 There are no records of roosting bats within 0.5km of the site. The nearest pipistrelle roost site within a residential property is 0.7km SW of the site at SD 746376 in Wiswell Village (see below).

5.5 Existing local records of bats within 1.5km of the site are shown below.

Species:	*Site:*	*Grid reference:*	*Date*	*Comment/recorder*
Pipistrellus sp	Wiswell	SD 746376	25 06 08	Maternity roost
Pipistrellus sp	Barrow	SD 736379	18 06 06	Maternity roost
Pipisrellus sp	Oak Hill, Whalley	SD736368	16 06 09	Maternity roost
P. pipistrellus	Wiswell	SD747372	09.07.08	Day roost / emergence activity
P pipistrellus	Wiswell	SD746373	Feb 2008	Day roost
Plecotus auritus	Wiswell	SD748373	10 06 10	Feeding and perching signs only
Plecotus auritus	Pendleton	SD758395	21.10.08	Feeding and perching signs only
Plecotus auritus	Wiswell Hall Farm	SD745373	14 03 11	Feeding and perching signs only

5.6 The following sources were consulted during the preparation of this report:

1. National Biodiversity Network (NBN) database, (terrestrial mammals - chiroptera)
2. Bat Conservation Trust (BCT)
3. East Lancashire Bat Group
4. Lancashire Biodiversity Partnership
5. Biological Heritage Sites Partnership (LCC, NE and LWT)
6. EED dataset (Lancashire bat records 2000 - 2011)
7. Magicmap interactive map
8. Natureonthemap (Natural England)
9. Multimap
10. Google Maps
11. MARIO - Maps and related information online (Lancashire County Council)

6 Constraints

6.0 Non-intrusive survey methods were used to assess the use of the property by bats.

6.1 The survey methodology is designed to determine the likely presence of bats within the buildings and does not necessarily prove absence.

6.2 National Biodiversity Network records do not confirm presence or absence of a species or habitat.

6.3 Absence of records does not imply that a bat species is not present within the recording area.

7 Survey results

7.0 There is no evidence of roosting bats at this property.

7.1 All external areas of the house were closely inspected for signs of access and roosting by bats; none were found. Similarly, all areas of the cattery / kennels were inspected in daylight to search for the presence of bat droppings and other indicative signs of bat activity – none were found.

7.2 An evening bat emergence survey (19 May 2011) did not find any evidence of roost emergence or flight activity associated with the property. Three qualified and experienced ecologists surveyed the site – although several bat species were recorded in flight within the boundary of the site, there was no evidence of roosting, feeding or perching activity associated with the buildings.

7.3 Three bat species were recorded in flight during the evening survey:

(1) A number of solitary common pipistrelles *(Pipistrellus pipistrellus)* were recorded feeding and foraging within the garden of the house and over adjacent ground close to the cattery throughout the evening; none were seen emerging or swarming close to the buildings.

(2) A myotis bat was recorded throughout the survey period by two surveyors; the actual species was not confirmed.

(3) A single noctule bat was also recorded flying over the site.

7.4 There were no obvious concentrations of foraging or feeding activity over the property and there was no evidence of any commuting routes or flight corridors across the site.

7.5 The maximum number of bats seen at any one time was two bats seen flying over the garden on the west side of the house; activity was largely confined to sheltered tree lines, hedgerows and the boundary of the site.

8 Evaluation and interpretation of results

8.0 There is no evidence of bat roosting activity within any of the buildings. A daylight inspection of the property failed to find any signs of access or roosting activity by bats. Additionally, an evening emergence survey at the site also failed to find any roosting, perching or feeding activity within the buildings.

8.1 The overall value of habitat features within the local landscape is 'moderate' [1]; the location of the property however provides sub-optimal feeding, foraging and commuting habitat for bats;

8.2 There are mature hedgerows along Pendleton Lane and a number of small woodlands and plantations nearby providing a 'moderate' level of connectivity to other habitats within the wider district for feeding, foraging and commuting bats. Habitat utilisation was found to be relatively poor at this site.

8.3 There are no records of roosting bats at this location or at other properties within 0.5km of the site.

8.4 Although several bat species are known to be present within the wider district, the density and frequency of bat activity at the site appears to be relatively low; this was found to be the case during the evening emergence survey.

8.5 There are no designated nature conservation sites immediately adjacent to the property - ie. Sites of Special Scientific Interest (SSSI), Biological Heritage Sites (BHS), National Nature Reserves NNR's), Local Nature reserves (LNR's) or Regionally Important Geological and Geomorphological Sites (RIGS).

8.6 The conservation significance of these buildings for bats is 'low' as defined by Natural England *(Guidelines for Proportionate Mitigation, BMG, 2004, A.J. Mitchell-Jones)* [2].

8.7 The potential of these buildings to support a regular or significant day roost, maternity roost, hibernation roost or transitory / mating roost is also relatively 'low'.

8.8 The scale of impact of the development at site level on local bat populations is likely to be low[3].

8.9 There is no evidence of roosting or nesting barn owls within the property.

[1] Guidance for assessing the value of habitat features – (BCT 2007, Bat Surveys, Good Practice Guidelines, p21)
[2] Guidelines foe proportionate Mitigation, (Bat Mitigation Guidelines, 2004).
[3] The scale of main impacts at site level on bat populations – Table 6.1 p37 - (BMG, 2004)

9 Main summary and recommendations

There is no evidence of bat roosting, feeding or perching within any part of the property.

The proposed building alterations **are unlikely to cause significant disturbance** to roosting bats or result in the loss of a nursery bat roost, resting place or hibernaculum or cause injury or death of a European Protected Species – Bats.

The work should proceed with reasonable caution and vigilance for the unexpected presence of solitary roosting bats. In the unlikely event that bats are exposed or vulnerable to harm, stop work in that area immediately and seek further advice by contacting Earthworks Environmental Design or the BCT helpline.

As the developer you should be mindful of your responsibilities towards protected species. An outline mitigation plan is provided for your guidance; mitigation refers to the practices adopted to reduce or remove the risk of disturbance, injury or death of a protected species.

There is no risk of disturbance to barn owls or other protected species at this property.

10 Impacts and Mitigation

10.0 Although the risk of disturbing isolated roosting bats during demolition works cannot be entirely eliminated, the scale of impact of the proposed development at site level on local bat populations is likely to be negligible or very low.

10.1 Developers must be able to demonstrate that adequate and proportionate measures (mitigation) have been taken to ensure that bats and their roosts are not disturbed, damaged or destroyed during the proposed demolition operations.

10.2 Mitigation (see Table 1 below) refers to the practices adopted to reduce or remove the risk of disturbance, injury or death of a protected species or damage to a roost. The Bat Mitigation Guidelines define mitigation as "*....measures to protect the bat population from damaging activities and reduce or remove the impact of development*"

ACTION:	METHOD:
1. Timing constraints	None
2. Highest risk areas	Although it is unlikely that roosting bats will be disturbed during the proposed development, there will always remain a low risk of exposing solitary bats during building and demolition operations, therfore the risk of disturbance to solitary bats cannot be entirely eliminated The pipistrelle bats are crevice-roosting species that are most frequently found roosting beneath weather boarding and other wall claddings or roofing materials at any time of year regardless of weather, season or time of day. The areas of highest risk at this site are (a) on the house roof where there is timber cladding to the dormer windows; also beneath roofing materials such as roofing slates, ridge tiles, verge tiles and roofing felt. (b) beneath the cement asbestos sheeting used as cladding on the gable apex (east) wall of the cattery (c) between the box alloy roofing materials and the original cement asbestos roofs where a small cavity is likely to exist.
3. Accidental exposure of bats	Stop work immediately if bats are exposed and are likely to be disturbed; eg if you find live or dead bats or expose obvious accumulations of bat droppings under roofing materials In the unlikely event of bats being exposed or vulnerable to harm at this property, all work in that area must stop immediately. Cover the exposed bats to reduce further risk of harm and seek further advice by calling the Bat Conservation Trust (BCT) helpline on 0845 1300 228.
4. Avoid handling bats	Contractors should avoid handling bats but where there is no alternative, use gloves or a small container to move them to a dark and quiet area, preferably without causing them to fly in daylight.
5. Legal protection	All contractors and project managers should be made aware of the legal protection afforded all species of bat in the UK and procedures should be in place to mitigate for the potential impact on bats before any building or demolition work is undertaken The onus lies with the applicant to satisfy herself that no offence will be committed if the development goes ahead, regardless of whether planning permission has been granted
6. Further advice	If you require further advice on bats during the proposed building operations or if you find an injured or resting bat, call BCT immediately; they will normally contact a qualified bat worker in the local area who will visit the site and provide further advice free of charge
7. Pre-development inspection	Not required
8. Post-development monitoring	Not required

Table 1: **MITIGATION NOTES**

APPENDIX A

Wildlife legislation – Bats and the law

All bat species in the UK receive full protection under the Wildlife and Countryside Act 1981 (amended by the Environment Protection Act 1990). The Countryside and Rights of Way Act 2000 amends the Wildlife and Countryside Act to also make it an offence to intentionally or recklessly damage, destroy or obstruct a place that bats use for shelter or protection. All species of bats are listed on Schedule 5 of the 1981 Act, which makes it an offence to:

- *intentionally kill, injure or take any wild bat.*
- *intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection This is taken to mean all bat roosts whether bats are present or not.*
- *intentionally or recklessly disturb any wild bat while it is occupying a structure or place which it uses for shelter or protection*

The protected status afforded to bats means planning authorities may require extra information (in the form of surveys, impact assessments and mitigation proposals) before determining planning applications for sites used by bats. Planning authorities may refuse planning permission solely on grounds of the predicted impact on protected species such as bats. Recent case law has underlined the importance of obtaining survey information prior to the determination of planning consent[1]

"It is essential that the presence or otherwise of protected species, and the extent that they may be affected by a development proposal, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision " [2]

All British bat species are included in Schedule 2 of the Conservation (Natural Habitats, &c) (Amendment) Regulations 2007, (also known as Habitats Regulations) which defines 'European Protected Species' (EPS).

[1] Bat Mitigation Guidelines, AJ Mitchell Jones, Joint Nature Conservation Committee, (2004) ISBN 1 86107 558 8
[2] Planning Policy Statement (PPS9) (2005) , Biodiversity and Geological Conservation. ODPM.

13.0 Protected species (Bats) and the planning process[1]

For development proposals requiring planning permission, the presence of bats, and therefore the need for a bat survey is an important 'material planning consideration'. Adequate surveys are therefore required to establish the presence or absence of bats, to enable a prediction of the likely impact of the proposed development on them and their breeding sites or resting places and, if necessary, to design mitigation and compensation. Similarly, adequate survey information must accompany an application for a Habitats Regulations licence (also known as a Mitigation Licence) required to ensure that a proposed development is able to proceed lawfully

The term development' [used in these guidelines] includes all activities requiring consent under relevant planning legislation and / or demolition operations requiring building control approval under the Building Act 1984

Natural England (Formerly English Nature) states that development in relation to bats *'covers a wide range of operations that have the potential to impact negatively on bats and bat populations. Typical examples would be the construction, modification, restoration or conversion of buildings and structures, as well as infrastructure, landfill or mineral extraction projects and demolition operations".*

[1] 2.2.3 - Planning for development, Bat Surveys Good Practice Guidelines, BCT (2007). (Mitchell-Jones, 2004)

14.0 Other references and contacts:

Bats, development and planning in England, (Specialist support series) - Bat Conservation Trust, 5th Floor, Quadrant house, 250 Kennington Lane, London, SE11 5RD, 0845 1300 228

Clarification of the legal duty of Local planning Authorities' to European Protected species: High Court Judgment June 2009: (Wooley v Cheshire East Borough Council) - Bat Conservation Trust.

Defra Circular 01/2005 (to accompany PPS 9) - Department for Environment, Food and Rural Affairs www.defra.gov.uk

Natural England 1 East Parade Sheffield S1 2ET, Enquiry Service: 0845 600 3078 enquiries@naturalengland.org.uk

National Planning Policy - PPS 9, Biodiversity and Geological Conservation, ODPM Circular 06/2005