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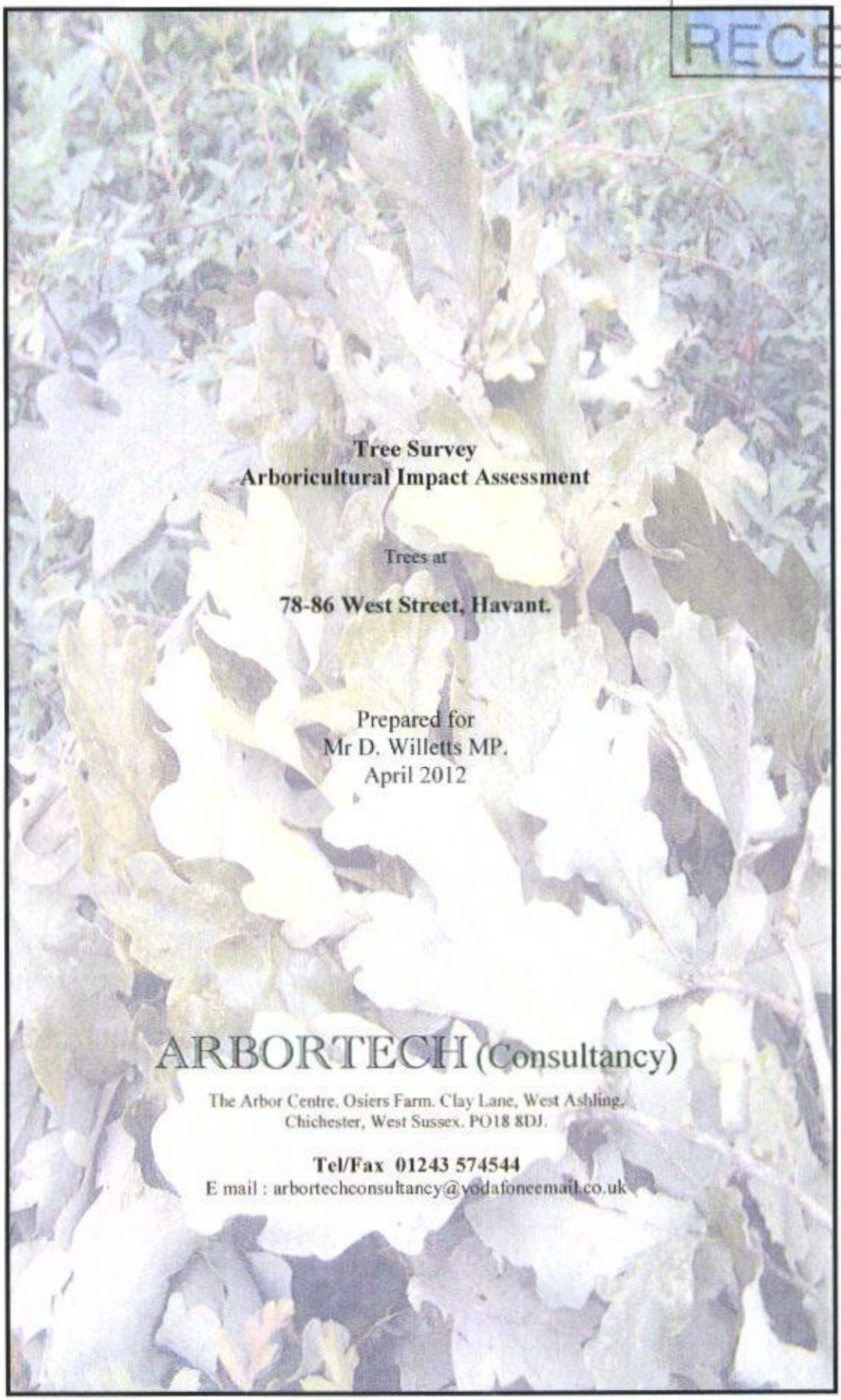

Tree Survey
Arboricultural Impact Assessment

Trees at

78-86 West Street, Havant.

Prepared for
Mr D. Willetts MP.
April 2012

ARBORTECH (Consultancy)

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Informative : Retained Trees & Development Sites.

TREES NEED ROOTS FOR :

- Anchorage i.e Stability.
- Water and nutrient uptake i.e general health.
- Energy storage i.e for drought periods.
- Breathing i.e Vertical gaseous exchange

DAMAGING TREE ROOTS MAY :

- Kill the tree.
- Weaken the tree.
- May cause the tree to fail.

TREE ROOTS CAN BE DAMAGED BY :
(Any may deny their needs for survival)

- Root severance
- Soil compaction.
- Escape of toxic fluids i.e Oil, Bitumen.
- Impermeable surfaces i.e Concrete

Tree Survey.

A Tree Survey records information about the trees on (or adjacent) a site, independently of any design proposal. Trees, groups of trees and woodlands are assessed for their physiological and structural condition and preliminary Health & Safety works are recommended. In addition the trees are categorised for their quality and value within the existing context. The tree categories are then differentiated on a tree survey plan.

The results of the Tree Survey may be included in the preparation of a Tree Constraints Plan which should be used to assist with layout design.

Arboricultural Impact Assessment.

Further to a tree survey, consideration is given to how a proposed development and retained trees will co-exist and interact in the present and future. It can identify and remove any potential conflicts between trees and the requirements of the development.

An AIA aims to identify, evaluate and mitigate the direct and indirect impacts on retained trees, that may arise as a result of the implementation of the layout proposal.

Arboricultural Method Statement for Protection of Trees during Construction.

This is a statement which is used to describe how construction works can be carried out close to trees and how the above and below ground parts of the trees will be adequately protected during this process.

Works are carried out in accordance with British Standard 5837:2005 *Trees in relation to construction – Recommendations* and good arboricultural practice.

1. INTRODUCTION

Client : Mr D Willetts MP

Report Ref : Will/ATAIA/4412

Site : 78-86 West Street, Havant.

Date of Site Visit : 20th March 2012

1.1 **Instruction and Purpose of the Report.**
Preparation of an Arboricultural report (in accordance with BS 5837) to include:

- Tree Survey.
- Arboricultural Impact Assessment.

1.2 **Documents provided :**
Andrews Newby Partnership provided me with the following :

- Topographical Land Survey Drg No : 11017 *(J. Brotherton & Partners)*.
- 'Proposed Parking' Drg No : 2844/P/01 Rev B.

1.3 **Scope of the report.**

- The report is based on the site visit and the information provided, listed in 1.2 above.
- The work is undertaken in accordance with BS 5837:2005 *Trees in relation to construction.*
- This report includes a preliminary Visual Tree Assessment (VTA) from ground level.
- All dimensions are estimated.
- No detailed investigations have been undertaken.
- This report is reliant on plans provided.

1.4 **Limitations of use and copyright :** As set out in the terms of engagement provided.

1.5 **Qualifications and experience :** Details provided in Appendix 5.

2 TREE SURVEY

2.1 **Identification and location of the trees :**
The trees can be identified on the '*Tree Survey Plan*' at Appendix 2.

Appendix 2 should be read in conjunction with Appendix 4 '*Tree Survey Notes*

2.2 **Tree observations:** The trees were visually inspected and the information recorded on the '*Tree Survey Schedule*' included as Appendix 1.

3 ARBORICULTURAL IMPACT ASSESSMENT

The Arboricultural Impact Assessment aims to identify, evaluate and mitigate the impacts upon retained trees, that may arise as a result of the implementation of the layout proposal.

3.1 Summary of the Impact of the proposed development.

Tree Retention.

T3C, T4C, T8C/R (retained at clients request for screening purposes from the retail park), T9C, T10C & T11C. These trees are to be retained and protected in accordance with BS 5837:2005 *'Trees in relation to construction'*.

Trees to be removed :

T1C/R, T2C/R, T5C/R, T6C/R & T7C/R

These are poor/low quality trees which are to be removed to allow for the implemention of the development.

4 TREE PROTECTION.

4.1 Protection of trees during development - General.

To prevent physical damage to the rooting environment or aerial portions of retained trees during construction activities; the trees will need to have measures put in place for their protection prior to, during and post construction phases of development.

4.2 Tree Root Protection Areas (RPAs).

The Root Protection Areas have been calculated for retained trees on site in accordance with BS 5837:2005, in order to avoid damage to roots or the rooting environment. They indicate the minimum area in m2 which is required for the functional rooting and stability of the trees.

Tree Reference	Root Protection Area Dimensions (m)	BS 5837 Category
T8	'Radius' of a square = 3.9m	C
T9	Radius' of a square = North 2.98 South 2.98 East 3.58 West 2.38 RPA offset by 20% to East (Open grown tree).	C
Juvenile trees within the verge to North. The verge surrounding these trees should be considered as the RPA.		

Table 1 : Root Protection Areas – Retained Trees.

4.3 Crown proportions.

The crown proportions of the retained trees are included in the 'Tree Survey Schedule' at Appendix 1.

4.4 **'Construction Exclusion Zone' - Tree Protection Barriers.**

It will be necessary to install a 'Construction Exclusion Zone' by way of Tree Protection Barriers set at the correct distances to encompass the Root Protection Areas of retained trees. See Appendix 3 in conjunction with Table 1 for the location of Tree Protection Barriers. Tree Protection should comply with the recommendations set out in British Standard 5837 : 2005.

4.5 **Construction of the proposed car-park within the RPA of T8.**

Where the proposed car-park encroaches upon RPAs, it will be necessary to utilise a 'No Dig' method of construction to avoid root severance/disturbance or compaction within the rooting environment.

No machine excavation, soil stripping or site grading should be undertaken.

A synthetic 3-dimensional load spreading product i.e "Cellweb" (Cellular Confinement System) should be used to avoid localised compaction or 'rutting' within the RPA. This should be correctly installed in accordance with the manufacturers specifications and BS 5837. *The design should take account of the height increase associated with the use of 'Cellweb' tree root protection system or similar, which is placed upon existing ground level.*

Where the proposed car-park would cover in excess of 20% of the RPA or be wider than 3m within it, it should be constructed so as to allow for aqueous and gaseous filtration (permeable) i.e gravel or dry jointed block paving. Works should be carried out in accordance with Section 11 of BS 5837:2005.

The proposed 'No Dig' area utilising 'Cellweb' is indicated on the '*Tree Constraints Plan*' at Appendix 3 and should be read in conjunction with Table 1. This should be installed at the onset of development, to ensure protection of the rooting environment throughout the construction process.

The boundary wall to the West of T8 is to be retained and utilised as a Tree Protection Barrier, to avoid access into the unprotected RPA.

4.6 **Construction Site Access.**

To avoid any inadvertent damage to retained trees; The site supervisor should take responsibility for supervising the approach, exit and on site activities of delivery, muck-away vehicles and site machinery.

4.7 **General Protection Measures.**

Utility Services.

No services are to be routed through any RPAs.

Soil Level Changes.

No machine excavation, soil stripping or site grading should be undertaken within the RPAs of trees to be retained to avoid root severance/disturbance.

Topography of the Site.
Care should be taken to avoid 'run off' from toxic fluids during construction, which may be harmful to trees i.e concrete mixings, diesel, oil.

Storage of construction materials
No construction materials or any material likely to be injurious to a tree i.e Oil, Bitumen, Cement (concrete mixing), should not be stacked or discharged within the Tree Root Protection Area or within 10m from a tree stem. Allowance should be made for any slope of the ground, so that damaging materials cannot run towards the trees.
At no time should the Root Protection Area be breached for storage purposes.

Machinery/Equipment near tree canopy.
Great care should be exercised when using piling rigs, mobile cranes or similar equipment near the spread of the canopy of trees so as not to damage them in any way. The site supervisor should take responsibility for supervising the approach, exit and on site activities of delivery, muck-away vehicles and site machinery.

Fires
Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. Size of fire and wind direction should be taken into account.

5 RECOMMENDATIONS.

5.1 **Tree Work Recommendations :**
Tree T8.
Prune the lower crown growth to a height of 4m to West back to the boundary.
Reason : To provide for the implementation of the car-park to the West of this tree.

T3, T4, T10 & T11 (Juvenile trees).
Formative prune to promote good tree structure.

5.2 **Implementation of tree works :** The contractor should carry out any tree works to BS 3998 *Recommendations for Tree Work* (2010).

Any required tree work operations should be carried out prior to construction activities on site due to space restrictions and Health and Safety issues further to this.

5.3 **Future Considerations :**
All trees on site should be inspected on a regular basis by a qualified arboriculturist.

5.4 **Building near trees :**
Foundations in proximity to trees should be specified by a structural engineer taking into account the current guidance set out in National House Building Council Chapter 4.2 (Foundations) Building near trees.

6 OTHER CONSIDERATIONS

6.1 **Trees subject to statutory controls :**
Consultation with the local planning authority will be required prior to any pruning works (other than certain exemptions) to trees covered by a tree preservation order or located in a conservation area.

6.2 **Risk**
The Occupiers Liability Act 1957 & 1984 places a "common duty of care" upon the owner occupier of a site to take reasonable steps to minimise the risk of personal injury or damage to property arising from any tree on that site.

6.3 **Wildlife.**
Your attention is drawn to the wildlife and Countryside Act 1981 and related legislation which provides statutory protection for nesting birds and bats including roosting sites, some mammals, invertebrate species and plants.

It would be prudent to undertake a Bat survey prior to carrying out any works to trees with significant cavities and to avoid works at times when birds are likely to be nesting.

6.4 **Trees outside the property.**
Trees located in adjacent properties are effectively out of the control of the owners of this site. 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 apply.

7 BIBLIOGRAPHY / REFERENCES

British Standard 5837 *'Trees in relation to construction - Recommendations'* : 2005.
British Standard 3998 '*Recommendations for Tree Work'* (2010)
Occupiers Liability Act 1957 & 1984.
Town & Country Planning Act 1990.
Wildlife & Countryside Act 1981 (As amended)
CRoW Act 2000

APPENDIX 1

Tree Survey Schedule

To be read in conjunction with 'Tree Survey Notes'

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T1	Apple *Malus spp*	3.5	175	N 3 S 2.5 E 2 W 2	1.2	SM	Fair	Poor	<10	C/R
Observations : • Single stem with large limb arising at 1m to North. • Large branch arising at 0.5m to South. • Extensive Ivy on stem.										
T2	Cherry *Prunus spp*	4.5	230	N 2 S 2 E 1.5 W 2.5	2	SM	Fair	Poor	<10	C/R
Observations : • Single upright stem with large branch arising at 1.5m – tight union with included bark.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T3	Hornbeam *Carpinus Betulus*	4	55mm max	N 1 S 1 E 1 W 1		J	Fair	Good	>10	C
Observations : • Young tree (staked)										
T4	Hornbeam *Carpinus Betulus*	5	55mm max	N 0.75 S 0.75 E 0.75 W 0.75		J	Fair	Good	>10	C
Observations : • Young tree (staked) • This tree would benefit from formative pruning.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T5	Cherry *Prunus spp*	4	120	N 1 S 1 E 1.5 W 1	1.2	J	Fair	Poor	<10	C/R
Observations : • Single stem with co-dominant bifurcation at 2m. • Some previous pruning evident.										
T6	Macrocarpa	11	540 At base	N 4 S 5 E W 4	1	M	Good	Poor	<10	C/R
Observations : • Stem divides at 0.75-1m - tight union with included bark. • Becomes multi-stemmed from 1m.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T7	Leylandii	11	300	N 4 S 0 E 4 W 4	2 East 0.5 West	M	Good	Fair	<10	C/R
Observations : • Single stem with significant branching to North and West from 0.5m										
T8	Leylandii	11	370	N 0.5 S 5 E 4 W 4	2 East 0.5 West	M	Good	Fair	<10	C/R
Observations : • Single upright stem with significant branching to West and South.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T9	Eucalyptus	10	280	N 4 S 2.5 E 4 W 1.5	3	SM	Good	Fair	10	C
Observations : • Main stem leans to North East with vertical branch arising at 1.5m. • Minor deadwood in crown to North.										
T10	Hornbeam *Carpinus Betulus*	3	60mm	N 0.5 S 0.5 E 0.5 W 0.5		J	Good	Good	>10	C
Observations : • Single upright stem.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T11	Hornbeam *Carpinus Betulus*	4.5	65mm	N 1 S 0.5 E 1 W 1		J	Good	Good	>10	C

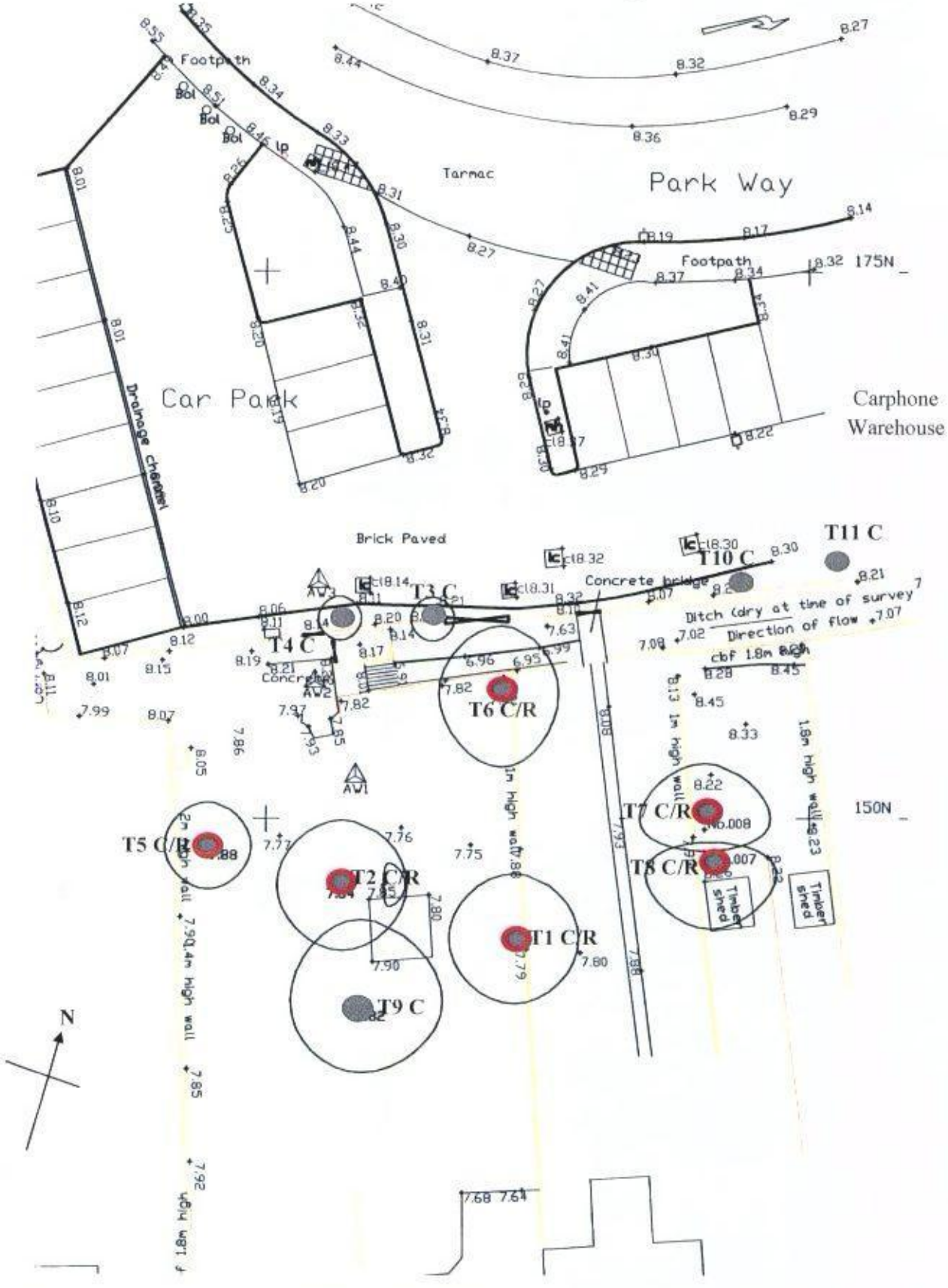
Observations :

- Single upright stem.

APPENDIX 2

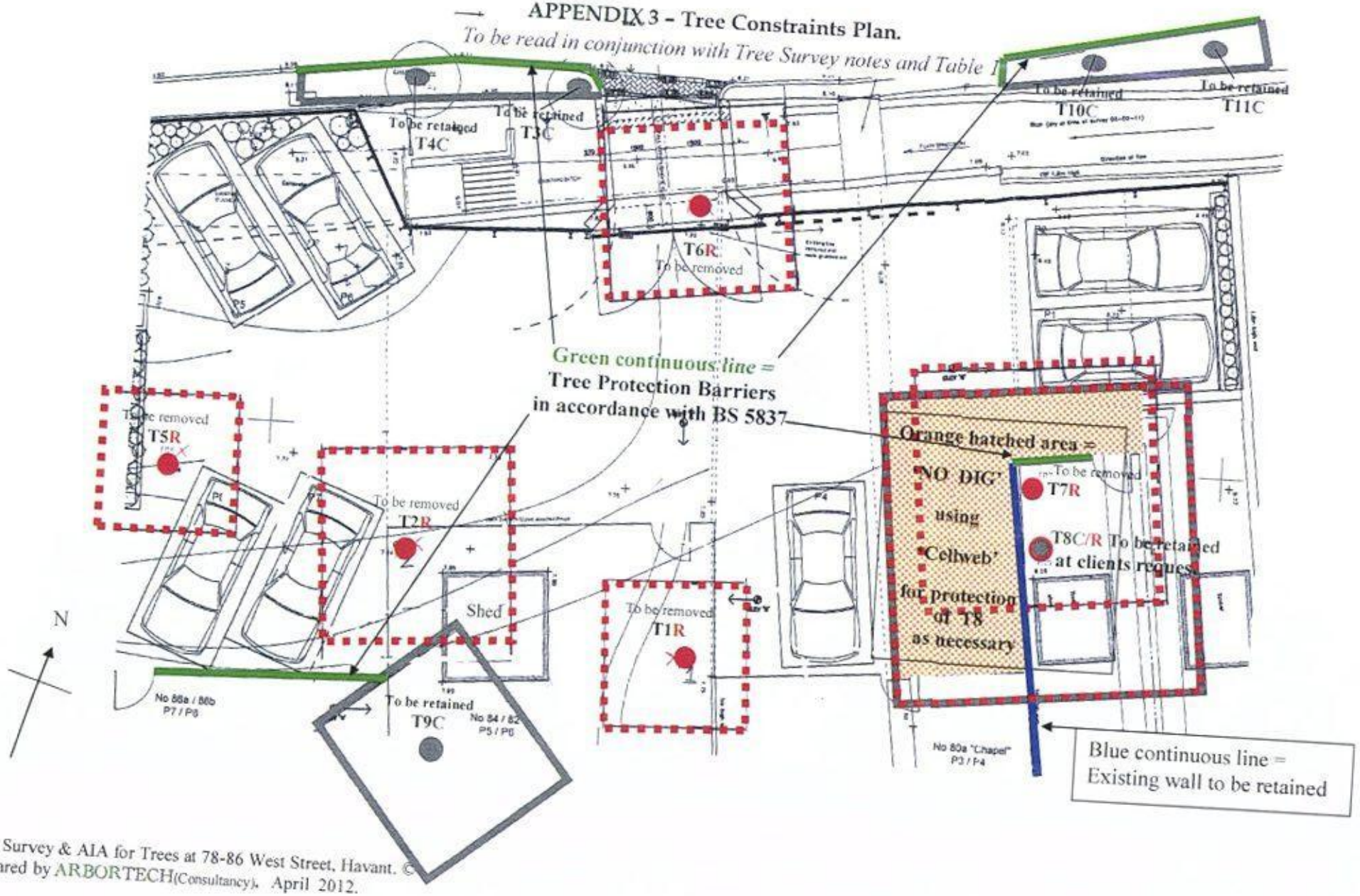
Tree Survey Plan

To be read in conjunction with 'Tree Survey Notes'.



APPENDIX 3 - Tree Constraints Plan.

To be read in conjunction with Tree Survey notes and Table 1



APPENDIX 4.

Tree Survey Notes

GENERAL TREE SURVEY NOTES.

- The pre-development site survey is based on guidelines set out in British Standard 5837 : 2005 and good arboricultural practice.
- Tree species has been determined (common name and scientific)
- All tree dimensions are estimated, height and spread being measured in metres and trunk diameter measured at 1.5m above ground level.
- The tree age classification is made in terms of the trees site specific maturity within the landscape.

Age groups are indicated as

J - Juvenile tree
SM - Semi-mature tree
M - Mature tree
OM - Over mature

ASSESSMENT AND CATEGORY CLASSIFICATION.

The condition of trees included in the survey has been assessed by a person being qualified and experienced in arboriculture. In making the assessment particular consideration has been given to :

- Tree species.
- Tree dimensions.
- Health, Age and Vigour of tree.
- Tree conformation including any structural defects.
- The location of the tree, relative to the existing site and surroundings.
- The landscape and environmental/habitat value.

On the basis of this individual assessment, the trees are classified into one of the following categories, or intermediate categories (A, B & C indicated in colour on the Tree Constraints Plan as a continuous line and R indicated in colour as a broken line).

A (GREEN) Trees of high quality and value making/to make a sustainable contribution.

B (BLUE) Trees of moderate quality and value making/to make a significant contribution.

C (GREY) Trees of low quality in adequate condition until new planting established.

R (RED) In current context could be removed.

In addition, the above categories may be attributed one or more of the following criteria :

1 Arboricultural values.
2 Landscape values.
3 Cultural values including Conservation.

A Tree Survey is primarily a data collection exercise and assessment of general tree condition at the time of surveying. It consists of a visual tree assessment from ground level. It should highlight any obviously visible signs of ill health or major defects. It is not an individual tree inspection or schedule of works, but should act as a guide for work which might be undertaken.

APPENDIX 5

QUALIFICATIONS and EXPERIENCE.

Arboricultural Consultant : Mr J.R Hayes. Tech.Cert.(Arbor.A).
Technicians Certificate in Arboriculture 1998.
City & Guilds Tree Surgery for Craftsmen 1990.

Arboricultural Surveyor : Mrs J.A Hayes.
Lantra Professional Tree Inspection Award 2.
Natural England Bat Worker
Science, Education & Conservation Licence. Licence No : 20111630

Arboricultural Consultant to :
Bedales School
Chichester Cathedral.
Chichester City Council
Chichester District Council
Douglas Briggs Partnership Architects, Urban Designers,Planners.
Halburn Ecological Consultants.
London Biggin Hill Airport.
Mansell Construction.
John Mowlem & Company PLC.....

Members of :
The Arboricultural Association.
Bat Conservation Trust

Continuing Professional Development :
We are informed of up-dated techniques in Arboriculture and regularly attend training courses to further our professional development.

Insurance cover :

Employers liability	10,000,000
Public liability	5,000,000
Professional indemnity	1,000,000

TERMS OF ENGAGEMENT.

1. Any report is provided for the sole use of the named Client and is confidential to the Client and his professional advisors. The Consultant accepts responsibility to the Client alone for the stated purposes of the report. No responsibility whatsoever is accepted to any person other than the Client himself. Any other such person relies upon the report at entirely his own risk. Neither the whole nor any part of the report or any reference thereto may be reproduced or transmitted, in any form or by any means, nor sold, hired or divulged to any third party without the Consultants prior written approval.

2. The content of any information supplied to the consultant by the client, including such items as reports, plans diagrams letters, data etc will be deemed to be true and accurate and such items will not be investigated or checked for their validity. Any information supplied subsequently found to be inaccurate, misleading or false may render the contents of the report invalid.

3. The report remains the property of the Consultant until payment has been received in full. The Client shall pay the Consultant his fee regardless of any outcome. In addition the Client will reimburse the Consultant the cost of all reasonable out of pocket expenses which he may incur. Payment in full of the total amount due must be made within 14 days and the Consultant shall be entitled to charge interest both before and after any judgement on the amount unpaid, at the rates listed below (delayed payment surcharge) per month (30 days) from time to time, until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest). No discount nor retention or set off against the same due is allowed unless agreed previously by the Consultant in writing.
DELAYED PAYMENT SURCHARGE.
Accounts not settled within the 14 day period will be surcharged as follows
2.5% for payment within 1 month.
5% for payment within 2 months.
10% for payment within 3 months (maximum time limit)
Surcharges are not an offer of extended credit.

4. The consultant reserves the right to charge the client for a proportion of the services undertaken, should the client, further to instructions, cancel the agreed commissioned services.

5. Any information in relation to the tree(s) survey/inspection must be provided at the time of the survey/inspection process, prior to the compilation of the report document. Any information received by the consultant after this time will not have been considered and an additional re-assessment of the trees may be necessary at the clients expense.

6. In making the report, the following assumptions will be made by the Consultant (and these are therefore matters for which no responsibility can be accepted by the Consultant),
(i) that there are not underground pipes, wires, cables, or other services or installations which might be damaged as a result of work recommended or necessary.
(ii) that no tree(s) is the subject of or protected by a Tree Preservation Order or the terms of a planning consent (unless stated), in relation to which the Client must make his own enquiries of the Planning Department responsible.

7. It is possible that the report will suggest further investigation works to be carried out by a specialist firm or person eg. Structural Engineer, Surveyor, drain or electrical engineer or other. On no account will liability be accepted by the Consultant in respect of matters on which the client is recommended to obtain such other specialist advice or if the Client proceeds or acts without obtaining and acting upon the relevant further advice.

8. The report will not purport to express an opinion about or to advise upon the condition of un-inspected parts of the land or tree(s) and should not be taken as making any implied representation or statements about such parts.

9. Preliminary surveys are visual inspections which do not include any information on engineering, no root or soil samples are taken for analysis and trees are not climbed (unless stated).

10. The Consultant will inspect as much of the land and tree(s) as is practicable given the scope of his instructions and the level of fee agreed. He will be under no obligation to inspect those areas that are unexposed or not readily accessible.

11. The tree survey and inspection process requires good, clear access to the trees being inspected. Any obstructions will limit the inspection process and will be noted within the survey / inspection assessment. The removal of any obstructions such as dense undergrowth, climbing plants etc will not be undertaken as part of the process, unless this additional operation has been previously agreed with the client.

12. The statements made in this report do not take account of the effects of extreme climate, vandalism or accident whether physical, chemical or fire. We cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct or professional manner in accordance with current good practice. The authority of this report ceases at any stated time limit within it, or if none stated after 1 year from the date of the survey or when any site conditions change, or pruning or other works unspecified in the report are carried out to, or affecting the subject tree(s), whichever is the sooner.

13. Any trees referred to in this report should be re-inspected further to storms or extreme weather conditions due to the potential for deterioration in tree condition/situation.
14. All trees referred to in this report are assessed in the situation and site usage as seen on the day of inspection.
The client should inform the consultant of any foreseeable changes/variations prior to the site visit.
15. Any verbal information given by the Consultant prior to the Clients receipt of the written report shall not be construed as a representation or warranty and should not be relied or acted upon.
16. Any claim by the Client which is based on any defect in the nature or quality of the Consultants services shall be notified to the Consultant within 7 days from the date of supply.
17. Except in respect of death or personal injury caused by the Consultants negligence, the Consultant shall not be liable to the Client by reason of any representation, or implied warranty, condition or other term, or any duty at common law, or under the express terms of any contract, for any consequential loss or damage (whether for loss of profit or otherwise), costs, expenses or other claims for consequential compensation whatsoever (and whether caused by the negligence of the Consultant his employees or agents or otherwise) which arise out of or in connection with the Consultant's services, except as expressly provided in these conditions.
18. The Consultant shall not be liable to the Client or be deemed to be in breach of the contract by reason of any delay in performing, or any failure to perform any of the Consultants obligations in relation to the services he renders.

19. The identification of fungi, insects or tree disorders are based on field observations and do not include a laboratory analysis (unless requested).

20. The contract between the Client and the Consultant shall be governed by the laws of England.

ARBORTECH (Consultancy)

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