



TREE SURVEY - HEALTH & SAFETY

Proj. No 4549	Parish Council Trees, Waterbeach, Cambridgeshire
Client:	Waterbeach Parish Council
Date of Report:	05/02/2015

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1.0 Introduction

1.1 Terms of Reference

- 1.1.1 Hayden's Arboricultural Consultants Limited has been commissioned by Waterbeach Parish Council to prepare a Tree Survey for the Parish Council Trees.
- 1.1.2 In accordance with instructions from Miss Elizabeth James, this report provides a detailed health and safety assessment of all the relevant trees at the site.
- 1.1.3 The site survey was carried out on the 27th January 2015. The relevant qualitative tree data was recorded in order to assess the condition of the existing trees, in relation to their existing environment and the risk they pose to persons and property in the immediate vicinity.
- 1.1.4 Information is given on condition, age, size and indicative positioning the trees in line with the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994).

1.2 Scope of Works

- 1.2.1 The trees were inspected from ground level with no climbing inspections undertaken. No samples have been removed from the site for analysis. The survey does not cover the arrangements that may be required in connection with the removal of existing underground services.
- 1.2.2 Whilst this is an arboricultural report, comments relating to non arboricultural matters are given, such as built structures and soil data. Any opinion thus expressed should be viewed as provisional and confirmation from an appropriately qualified professional sought. Such points are clearly identified within the body of the report.
- 1.2.3 An intrinsic part of tree inspection is the assessment of risk associated with trees in close proximity to persons and property. Most human activities involve a degree of risk with such risks being commonly accepted, if the associated benefits are perceived to be commensurate. In general, risk relating to trees tends to increase with the age of the trees concerned, as do the benefits. It will be deemed to be accepted by the client that the formulation of the recommendations for all the management of the trees will be guided by the cost-benefit analysis (in terms of amenity), of the tree work that would remove all the risk of tree related damage.

2.0 The Site

2.1 Site Description

- 2.1.1 The sites are specific areas of ;and owned or maintained by Waterbeach Parish Council, Cambridgeshire.



2.2 Soils

- 2.2.1 The soils type commonly associated with this site are freely draining lime rich loams. They are of moderate fertility and mainly support herb-rich chalk and limestone pastures, and lime-rich deciduous woodland type habitats. This soil type constitutes approximately 3.7% the total English land mass.
- 2.2.2 The data given was obtained from a desk top study which provides indications of likely soil types. By definition, this information is not comprehensive and therefore any decisions taken with regards the management, usage or construction on site should be based on a detailed soil analysis.

2.3 Statutory Tree Protection

- 2.3.1 Hayden's Arboricultural Consultants Limited have been unable to ascertain whether the trees identified within this report are covered by local planning authority administered statutory tree protection. In view of this, owners, managers or any persons wishing to undertake work to any trees should contact the local planning authority South Cambridgeshire District Council, to ensure no such protection measures exist.

3.0 Tree Survey

- 3.1 Each tree on site has been surveyed in sufficient detail to meet the needs of the health and safety assessment.
- 3.2 In accordance with item 3.1 a total of forty eight individual trees, seven groups of trees, three areas of trees and two hedges have been identified. These have been numbered T001 – T048, G001 – G007, A001 – A003 and H001 – H002 respectively.
- 3.3 An accurate topographical survey was not available at the time of inspection. Therefore, the position of the trees shown on the attached drawing no. 4549-D has been fixed by use of a hand-held GPS surveying unit. Given this, the position of the trees must be considered indicative, although drawing no. 4549-D provides a fair representation of the relationship of the trees as distributed across the different sites.
- 3.4 Within the total inspection, a number of the trees and features recorded in the Schedule of Trees require intervention. Of these, the items requiring the **most urgent** action are as follows.

Within six months:

T006 – Recreation Ground	Fell to ground level.
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- 3.5 Over and above the general and prudent recommendation that all trees are inspected on an annual basis, the following items have been identified as requiring enhanced monitoring to assess any changes in faults and weaknesses etc as detailed in the Schedule of Trees:

T007– Recreation Ground	Monitor annually (lack of vigour).
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- 3.6 Details of all proposed tree works together with priorities are given on the attached Schedule of Trees and Schedule of Works.



- 3.7 In order to consider the long-term amenity benefits of the trees at this location, an assessment has been made of the Safe Useful Life Expectancy (SULE) of each tree or landscape feature (to be managed as a unit). This is an estimate based on the visual evidence at the time of inspection, combined with knowledge of the growth habits and characteristics of the species involved, and moderated by any localized site conditions. Clearly this must be treated only as a guide because trees are living organisms which react to macro and micro changes to their environment. Nonetheless, this information can be useful in targeting limited resources to the portions of the site predicted to suffer the earliest degrade. A summary of the SULE of the trees and landscape features at Waterbeach Parish Council Land is as follows:

Safe & useful life expectancy in excess of 40 years	T004, T037
Safe & useful life expectancy between 20 & 40 years	G006, T001, T002, T003, T009, T010, T012, T013, T024, T025, T028, T029, T033, T035, T036, T038
Safe & useful life expectancy between 10 & 20 years	A001, A002, A003, G001, G002, G003, G004, G005, G007, H001, H002, T005, T006, T007, T008, T011, T014, T015, T016, T017, T018, T019, T020, T021, T022, T023, T026, T027, T030, T031, T032, T034, T039, T040, T043, T044, T045, T046, T047, T048
Safe & useful life expectancy of less than 10 years	T041, T042

The above information is visually displayed in drawing 4549-D.

- 3.8 Given the dynamic nature of trees and their environment, the condition of the trees could alter at any time.

4.0 Tree Works

- 4.1 All tree works should be carried out in line with British Standard 3998:2010 – “British Standard Recommendations for Tree Works”.
- 4.2 If the trees proposed for work are included in any statutory protection detailed at item 2.3 (and other than for specified exceptions) no intervention will take place until written permission has been obtained from the relevant authority.
- 4.3 The trees inspected and detailed within this report have been selected for inclusion due to their influence on the site. Where works have been recommended to trees outside the ownership of the site, these can only progress with the agreement of the owner, except where it involves portions of the trees overhanging the boundary.



5.0 Conclusions

- 5.1 Given all of the above it is considered that many of the trees discussed within this report are attractive and important visual amenities which provide a variety of benefits including individual aesthetic quality, screening, historic importance and wildlife habitat. The trees are located within an area of high public access and therefore have the potential to cause a serious incident if they suffer sudden or catastrophic structural failure.
- 5.2 Forty eight individual trees, seven groups of trees, three areas of trees and two hedges have been plotted. Of these, a number of specimens have been identified as requiring surgery or enhanced monitoring.
- 5.3 The proposed works have been prioritised based on the situation, type and scale of the problem, and the perceived risk of harm/failure. Inevitably, this is a subjective matter, but is based on an amalgamation of knowledge and experience.

6.0 Recommendations

- 6.1 As can be seen from the above, a variety of tree surgery, felling and maintenance operations have been identified. These have been prioritised and fully detailed. It is recommended that these works be actioned according to the proposed timescales.
- 6.2 Routine annual inspections should be undertaken to ensure the trees are maintained in as safe a condition as practically possible given the balance between the wildlife habitats, historic importance, landscape value and personal safety. One tree requires enhanced monitoring to ensure its safe retention as detailed at item 3.5 above.
- 6.3 The tree surgery works proposed as part of the Survey are recommended to mitigate any identified health and safety problems, to promote longevity in retained trees, and to consider long-term landscaping implications. To this end, should these recommendations be overruled, this Survey stands as the opinion of Hayden's Arboricultural Consultants Limited and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the Local Planning Authority, cannot be the responsibility of this practice.



7.0 Limitations & Qualifications

Tree inspection reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during its production. No checking of independent third party data will be undertaken. Hayden's Arboricultural Consultants Limited will not be responsible for the recommendations within this report where essential data is not made available, or is inaccurate.

This report will remain valid for one year from the date of inspection, and only whilst site conditions remain unaltered. It will become invalid if for example construction works or changes in soil level take place within the sphere of influence of the tree or trees concerned. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather, or any other unreasonably foreseeable events.

If site conditions change as referred to above, it will be necessary to undertake a new tree inspection to ensure the recommendations reflect the most current situation.

It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following:-

1. The need to avoid reasonably foreseeable damage.
2. The arboricultural considerations - tree safety, good arboricultural practice (tree work) and aesthetics.

The client and their insurers are deemed to have accepted the limitations placed on the recommendations by the sources quoted in this report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.

Signed:



February 2015.....

For and on Behalf of Hayden's Arboricultural Consultants Limited



8.0 References

British Standards Institute. (2010). *Recommendations for Tree Work BS 3998:2010* BSI, London.

British Standards Institute. (2012). *Trees in Relation to Design, Demolition and Construction – Recommendations BS5837:2012* BSI, London.

Tree Preservation Orders and trees in conservation areas (2014). Department for Communities and Local Government.

Lonsdale D. (1999). *Research for Amenity Trees No 7: Principles of Tree Hazard Assessment and Management*, HMSO, London.

Mattheck & Breloer H. (1994). *Research for Amenity Trees No.4: The Body Language of Trees*, HMSO, London.

A Methodology for Routine Tree Inspections, David Carmichael, Suffolk Coastal District Council 2002.



9.0 Appendices

Appendix	A	Species List & Tree Problems
Appendix	B	Schedule of Trees
Appendix	C	Schedule of Works
Appendix	D	Explanatory Notes
Appendix	E	Advisory Information
	1.	European Protected Species and Woodland Operations Decision Key to aid planning of woodland operations and protecting EPS (v.1)
Appendix	F	Drawing No 4549-D



Appendix A - Species List & Tree Problems

Species List:

Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Cherry	<i>Prunus sp.</i>
Cherry Plum	<i>Prunus cerasifera</i>
Cypress	<i>Cupressus sempervirens</i>
Elder	<i>Sambucus nigra</i>
English Oak	<i>Quercus robur</i>
False Acacia	<i>Robinia pseudoacacia</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hornbeam	<i>Carpinus betulus</i>
Horse Chestnut	<i>Aesculus x hippocastanum</i>
Lawson Cypress	<i>Chamaecyparis lawsoniana</i>
Leyland Cypress	<i>x Cupressocyparis leylandii</i>
Lime	<i>Tilia vulgaris</i>
Lombardy Poplar	<i>Populus nigra 'Italica'</i>
London Plane	<i>Platanus acerifolia</i>
Maple	<i>Acer sp.</i>
Norway Maple	<i>Acer platanoides</i>
Oak	<i>Quercus robur.</i>
Prunus sp	<i>Prunus sp.</i>
Scots Pine	<i>Pinus sylvestris</i>
Silver Birch	<i>Betula pendula</i>
Spruce	<i>Picea sp.</i>
Sycamore	<i>Acer pseudoplatanus</i>
Weeping Willow	<i>Salix x chrysocoma</i>
Wild Cherry	<i>Prunus avium</i>
Yew (English)	<i>Taxus baccata</i>



Tree Problems:

This gives a brief description of the problems identified in the attached Tree Survey.

Name: Bacterial Bleeding Canker (<i>Pseudomonas syringae</i> pv. <i>Aesculi</i>):	
Symptoms/Damage Type:	Trees with early symptoms show scattered drops of rusty-red, yellow-brown or almost black lesions from which gummy liquid oozes from small or large patches of dying bark on the stems or branches. As the disease progresses, and particularly if a tree has multiple bleeding cankers, the areas of dead phloem and cambium underneath the bleeding areas may coalesce and extend until they encircle the entire trunk or branch.
Consequence:	In advanced cases crown symptoms become visible, typically consisting of yellowing of foliage, premature leaf drop and eventually, crown death.
Control Measures:	There is currently no proven means of control, pruning away affected tissues may slow the spread of the infection.

Name: Basal Suckers	
Symptoms/Damage Type:	A profusion of shoots emanating from the base of the main stem close to ground level. Several species of trees but most notably Limes produce suckers as part of their naturalised habit however in some species this can be an indicator of elevated stress upon the tree.
Consequence:	Suckers do not cause direct harm to the tree in their self however they can be problematic where they impede free use of space such as where a tree is adjacent to a footpath or roadway. Where suckers are established they can impede visibility of the basal area of the stem and prevent identification of more significant defects such as decay cavities or fungal growths. If left unchecked the suckers can establish to become large limbs in their own right and spoil the form of the tree and presenting issues for future management as removal would leave large wounds around the stem base providing opportunity for ingress of decay.
Control Measures:	Regular pruning away of new sucker growth is recommended to prevent the development of the issues mentioned above dependent upon the implications and the trees location.

Name: Deadwood	
Symptoms/Damage Type:	This relates to dead branches in the crown of the tree. In the majority of cases, this is caused by the natural ageing process of the tree or shading due to its close proximity to neighbouring trees. However, in some situations, it may be related to fungal, bacterial or viral infection.
Consequence:	Depending upon the location and mass of dead wood removal of the affected tissue may be necessary to prevent harm to persons or property as the wood will become unstable as it decays and in some circumstances is likely to fall from the tree with little or no warning.
Control Measures:	Detailed monitoring should be undertaken on those trees showing signs of excessive deadwood production to identify the underlying cause.



Name: Epicormic growth	
Symptoms/Damage Type:	This is the production of numerous shoots on the main stem and branches of the tree. They are produced by the bursting into life of otherwise dormant buds. It is commonly associated with elevated levels of stress on the tree.
Consequence:	Whilst epicormic growth is usually symptomatic of an issue elsewhere within the tree heavy proliferation can cause the trees resources to become depleted or may mask significant structural weaknesses within the framework of the tree.
Control Measures:	Pruning off epicormic growth may be necessary to improve the visual amenity of the tree or prevent the development of a hazard or obstruction. No direct means of prevention are available other than therapeutic measures to alleviate stresses on the tree.

Name: Ivy (<i>Hedera helix</i>)	
Symptoms/Damage Type:	Ivy may grow to varying degrees on all areas of a tree from the base to the upper crown. It is possible that in doing so it will out-compete the host tree for available light thereby suppressing the host.
Consequence:	This is generally only harmful to the tree on already unhealthy specimens which may be constricted by large ivy stems around the trunk or may have their top growth suppressed by a mass of flowering shoots in the crown.
Control Measures:	Ivy should only be removed if absolutely necessary because it provides abundant cover to wildlife and then by severing twice close to the ground and removing a length of stem thereby causing the gradual dying away of the aerial parts of the plant providing extended benefit to wildlife whilst relieving the pressure on the tree.



Appendix B

Schedule of Trees

SCHEDULE OF TREES

Parish Council Land, Waterbeach, Cambridgeshire

Surveyed By: Becky Barton Date: 27/01/2015
Managed By: David Carmichael

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority	
			Min Dist	Crown Base	Lowest Branch	Age					Water Demand
			RPA (m ²)	Aspect	Aspect	SULE					Ground Cover
A001	Ash, Prunus, Elder, Sycamore	200	9		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4	
		2.4	0-2m		SM	Moderate					
Yes		18.1			10 + years						
A002	Spruce, Cherry, Oak, Ash, Hazel	190	13		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. Area of semi mature trees. The larger trees on the boundary line are heavily shrouded in Ivy, preventing a full inspection and suppressing the canopies.	C2	Remove Ivy.	3	
		2.28	0-2m		SM	Moderate					
Yes		16.3			10 + years						
A003	Scots Pine, Cypress sp.	400	16		Moderate	N4.0, E4.0, S4.0, W4.0	Line of trees located on the boundary of the village cemetery. Many of the stems feature a dense Ivy covering, preventing full visual assessment. All trees appear to be in reasonable condition.	C2	Remove Ivy to ensure not masking major faults.	3	
		4.8	0-2m		EM	High					
Yes		72.4			10 + years						
G001	Sycamore x4	170	9		Moderate	N2.5, E2.5, S2.5, W2.5	Fair condition. Line of 4 trees. No indicators of disease/decay or structural defects.	C2	No work required.	4	
		2.04	2.1-4m		SM	Moderate					
Yes		13.1			10 + years						
G002	Cherry Plum x1, Wild Cherry x1	190	4		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4	
		2.28	0-2m		SM	Moderate					
Yes		16.3			10 + years						
G003	Silver Birch x5	180	9		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. Group of 5 trees of similar size and form. No indicators of disease/decay or structural defects.	C2	No work required.	4	
		2.16	0-2m		SM	Low					
Yes		14.7			10 + years						
G004	Field Maple x5, Hazel x3	180	8		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4	
		2.16	0-2m		SM	Moderate					
Yes		14.7			10 + years						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
G005	Wild Cherry x12	120	8		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. Group of 12 trees. No indicators of disease/decay or structural defects.	C2	No work required.	4
		1.44	0-2m		SM	Moderate				
Yes		6.5			10 + years					
G006	Lime x19, London Plane x1	600	21		High	N6.5, E6.5, S6.5, W6.5	A group of mostly mature Lime with occasional semi mature trees. The trees within the area are of generally good quality with no significant defects found. Many of the trees have a multi-stemmed canopy with tight unions, but no significant included bark. Both major and minor deadwood are present in many of the trees crowns, this should be removed.	B2	Remove major deadwood.	3
		7.2	2.1-4m		M	Moderate				
Yes		162.9			20+ years	Grass				
G007	Prunus x3, Ash x2, Field Maple x1	180	4.5		Moderate	N2.5, E2.5, S2.5, W2.5	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4
		2.16	0-2m		SM	Moderate				
Yes		14.7			10 + years					
H001	Hawthorn	100	2.5		Moderate	N1.0, E1.0, S1.0, W1.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4
		1.2	0-2m		SM	High				
Yes		4.5			10 + years					
H002	Leyland Cypress	190	8		Moderate	N2.0, E2.0, S2.0, W2.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4
		2.28	0-2m		SM	High				
Yes		16.3			10 + years					
T001	Common Lime	900	18		High	N9.5, E9.5, S9.5, W9.5	Good condition. Minor deadwood. Tight unions on scaffold limbs. Dense Ivy covering. Open grown tree.	B1	No work required.	4
		10.8	2.1-4m		M	Moderate				
Yes		366.4			20+ years					
T002	Common Lime	800	18		High	N8.0, E8.0, S8.0, W8.0	Good condition. Tree features minor defects. Minor deadwood. Minor cavities in main stem. Open grown tree.	B1	No work required.	4
		9.6	2.1-4m		M	Moderate				
Yes		289.5			20+ years					
T003	Sycamore	700	18		High	N7.5, E7.5, S7.5, W7.5	Good condition. Crossing and rubbing branches. Minor deadwood. No indicators of disease/decay. Minor cavities in scaffold limbs. Open grown tree.	B1	No work required.	4
		8.4	2.1-4m		M	Moderate				
Yes		221.7			20+ years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T004	English Oak	1100	18		High	N9.0, E9.0, S9.0, W9.0	Excellent condition. An attractive tree located within the recreation ground. The tree appears to be healthy and there are no significant indicators of disease or decay. Deadwood within the crown overhangs the footpath and neighbouring bowling green.	A1	Remove major deadwood.	3
		13.2	2.1-4m		M	Moderate				
Yes		547.4			40 + years					
T005	Norway Maple	600	14		High	N7.0, E7.0, S7.0, W7.0	Located within a children's playground. A large cavity at the base of the stem shows significant stem decay and the crown is showing signs of stress, with major limb dieback and major deadwood. Given the condition of the tree and its location, it is recommended that the tree be pollarded.	C1	Pollard at 5 metres.	3
		7.2	2.1-4m		M	Moderate				
Yes		162.9			10 + years					
T006	Horse Chestnut	650	16		High	N7.0, E7.0, S7.0, W7.0	A large Horse Chestnut located adjacent to, and overhanging, a children's playground and basketball court. The tree has been affected by Bacterial Bleeding Canker; multiple bleeding areas are present on the stem and scaffold limbs. The most north-eastern scaffold limb has been affected the worst, with large cracks appearing. There is a noticeable lack of vigour and dieback within the crown. It is recommended that the tree be felled, before it begins shedding large limbs.	C1/U	Fell to ground level.	2
		7.8	2.1-4m		M	Moderate				
Yes		191.1			10 + years					
T007	Common Ash	600	14		Moderate	N7.0, E7.0, S7.0, W7.0	An old pollard. Tree is displaying a significant lack of vigour and the crown contains major deadwood.	C2	Monitor annually (lack of vigour).	3
		7.2	0		M	Moderate				
Yes		162.9			10 + years					
T008	Common Lime	450	9		Moderate	N5.0, E5.0, S5.0, W5.0	Lack of vigour. Basal suckers. Minor deadwood. Group tree.	C2	No work required.	4
		5.4	0		EM	Moderate				
Yes		91.6			10 + years					
T009	Common Lime	550	17		High	N7.0, E7.0, S7.0, W7.0	Tree features minor defects. Minor cavities in scaffold limbs. Minor deadwood. Open grown tree.	B1	No work required.	4
		6.6	2.1-4m		M	Moderate				
Yes		136.8			20+ years					
T010	Norway Maple	650	15		High	N7.0, E7.0, S7.0, W7.0	Good condition. No indicators of disease/decay. Minor deadwood.	B1	No work required.	4
		7.8	2.1-4m		M	Moderate				
Yes		191.1			20+ years					
T011	Silver Birch	380	14		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. No indicators of disease/decay or structural defects.	C1	No work required.	4
		4.56	2.1-4m		SM	Low				
Yes		65.3			10 + years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T012	Sycamore	650	15		High	N7.0, E7.0, S7.0, W7.0	Good condition. Minor deadwood. Tree features minor defects. Minor cavities in scaffold limbs. Tight unions on scaffold limbs. Open grown tree.	B1	No work required.	4
		7.8	2.1-4m		M	Moderate				
Yes		191.1			20+ years					
T013	Common Lime	500	15		High	N7.0, E7.0, S7.0, W7.0	Good condition. Tree features minor defects. Minor cavities in scaffold limbs. Tight unions on scaffold limbs. Open grown tree.	B1	No work required.	4
		6	2.1-4m		EM	Moderate				
Yes		113.1			20+ years					
T014	Horse Chestnut	550	15		High	N7.0, E7.0, S7.0, W7.0	Minor deadwood. Bark wounds at base of stem. Epicormic growth on main stem.	C1	No work required.	4
		6.6	2.1-4m		M	Moderate				
Yes		136.8			10 + years					
T015	Horse Chestnut	650	15		High	N7.0, E7.0, S7.0, W7.0	Group tree. Helical stem growth. Most southern scaffold limb features significant decay near its union, there are also further major cavities further up the limb.	C1	Remove most southern limb featuring major cavity at 3 metres.	3
		7.8	2.1-4m		M	Moderate				
Yes		191.1			10 + years					
T016	Lombardy Poplar	500	18		High	N4.0, E4.0, S4.0, W4.0	Fair condition. No indicators of disease/decay.	C1	No work required.	4
		6	2.1-4m		EM	High				
Yes		113.1			10 + years					
T017	Sycamore	350	13		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. No indicators of disease/decay. Included bark. Tight unions on scaffold limbs.	C1	No work required.	4
		4.2	2.1-4m		SM	Moderate				
Yes		55.4			10 + years					
T018	Common Ash	450	13		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. Minor deadwood. Tight unions on scaffold limbs. Bark wounds on main stem. Group tree.	C1	No work required.	4
		5.4	2.1-4m		EM	Moderate				
Yes		91.6			10 + years					
T019	Common Ash	380	13		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. No indicators of disease/decay. Minor deadwood.	C1	No work required.	4
		4.56	2.1-4m		SM	Moderate				
Yes		65.3			10 + years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T020	Wild Cherry	550	11		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. No indicators of disease/decay. Minor deadwood.	C1	No work required.	4
		6.6	2.1-4m		M	Moderate				
Yes		136.8			10 + years					
T021	Norway Maple	380	13		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. No indicators of disease/decay or structural defects.	C1	No work required.	4
		4.56	2.1-4m		SM	Moderate				
Yes		65.3			10 + years					
T022	Silver Birch	440	15		Moderate	N5.0, E5.0, S5.0, W5.0	Fair condition. No indicators of disease/decay or structural defects.	C1	No work required.	4
		5.28	2.1-4m		EM	Moderate				
Yes		87.6			10 + years					
T023	Sycamore	450	13		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. No indicators of disease/decay. Included bark. Tight unions on scaffold limbs.	C1	No work required.	4
		5.4	2.1-4m		EM	Moderate				
Yes		91.6			10 + years					
T024	Norway Maple	600	14		Moderate	N7.0, E7.0, S7.0, W7.0	Good condition. Generally good condition tree overhanging a footpath. Multi-stemmed canopy with tight unions. Canopy contains minor deadwood.	B2	No work required.	4
		7.2	4.1-6m		M	Moderate				
Yes		162.9			20+ years					
T025	Norway Maple	500	14		Moderate	N7.0, E7.0, S7.0, W7.0	Generally good condition tree. The stem sub divides at 3 metres into two scaffold limbs. These feature a tight union. Canopy contains minor deadwood.	B2	No work required.	4
		6	4.1-6m		M	Moderate				
Yes		113.1			20+ years					
T026	Wild Cherry	170	5		Low	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood. Bark wounds at base of stem.	C1	No work required.	4
		2.04	0-2m		SM	Moderate				
Yes		13.1			10 + years					
T027	Hawthorn	180	4		Low	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood.	C1	No work required.	4
		2.16	0-2m		SM	Moderate				
Yes		14.7			10 + years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T028	Sycamore	390	14		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. No indicators of disease/decay or structural defects.	C2	No work required.	4
		4.68	4.1-6m		SM	Moderate				
Yes		68.8			20+ years					
T029	Norway Maple	500	15		Moderate	N7.0, E7.0, S7.0, W7.0	Mature tree with a multi-stemmed crown. Canopy contains crossing and rubbing branches and minor deadwood.	B2	No work required.	4
		6	4.1-6m		M	Moderate				
Yes		113.1			20+ years					
T030	Hornbeam	190	8		Low	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood. Bark wounds at base of stem.	C1	No work required.	4
		2.28	0-2m		SM	Moderate				
Yes		16.3			10 + years					
T031	Hornbeam	400	8		Low	N4.5, E4.5, S4.5, W4.5	Fair condition. Minor cavities in scaffold limbs. Minor deadwood.	C1	No work required.	4
		4.8	0-2m		EM	Moderate				
Yes		72.4			10 + years					
T032	Hawthorn	300	5		Low	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood.	C1	No work required.	4
		3.6	0-2m		EM	Moderate				
Yes		40.7			10 + years					
T033	English Oak	600	15		Moderate	N8.0, E8.0, S8.0, W8.0	Mature oak overhanging a footpath. Tree is in generally good condition with no significant indicators of disease, decay or structural defects. The crown contains minor deadwood.	B2	No work required.	4
		7.2	4.1-6m		M	Moderate				
Yes		162.9			20+ years					
T034	Hawthorn	250	5		Low	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood.	C1	No work required.	4
		3	0-2m		EM	Moderate				
Yes		28.3			10 + years					
T035	Common Yew	550	8		Moderate	N4.5, E4.5, S4.5, W4.5	Good condition. No indicators of disease/decay or structural defects.	B1	No work required.	4
		6.6	2.1-4m		EM	Moderate				
Yes		136.8			20+ years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T036	Common Yew	600	5		Moderate	N4.5, E4.5, S4.5, W4.5	Good condition. Epicormic growth on main stem. Dense Ivy covering.	B1	No work required.	4
		7.2	2.1-4m		M	Moderate				
Yes		162.9			20+ years					
T037	Common Beech	850	18		High	N8.0, E8.0, S8.0, W8.0	A large attractive Beech located within the cemetery. The tree features a multi-stemmed canopy. Overall the tree appears to be in excellent condition with no significant indicators of disease, decay or structural defects.	A1	No work required.	4
		10.2	2.1-4m		M	Moderate				
Yes		326.9			40 + years					
T038	Common Beech	750	16		High	N7.0, E7.0, S7.0, W7.0	A large tree located within the village cemetery. The stem features a dense Ivy covering, preventing a full inspection. The tree appears to be in sound condition.	B1	No work required.	4
		9	2.1-4m		M	Moderate				
Yes		254.5			20+ years					
T039	Lawson Cypress	480	14		Moderate	N3.5, E3.5, S3.5, W3.5	Fair condition. No indicators of disease/decay or structural defects. Group tree.	C2	No work required.	4
		5.76	2.1-4m		EM	High				
Yes		104.2			10 + years					
T040	Lawson Cypress	470	14		Moderate	N3.5, E3.5, S3.5, W3.5	Fair condition. No indicators of disease/decay or structural defects. Group tree.	C2	No work required.	4
		5.64	2.1-4m		EM	High				
Yes		99.9			10 + years					
T041	False Acacia	600	15		Moderate	N5.0, E5.0, S5.0, W5.0	Specimen is located within the village cemetery. At 2 metres on the south western aspect of the stem is a cavity that reveals significant stem decay, upon resonance testing much of the lower stem was found to be decayed. The tree has recently begun shedding large limbs, with a tearout wound visible at 4.5 metres. There appears to be a lack of vigour and dieback within the canopy. Given the likelihood that the tree will continue to shed large limbs and the tree's location within the cemetery, it is recommended that the tree be felled.	U	Fell to ground level.	3
		7.2	2.1-4m		M	Moderate				
Yes		162.9			<10 Years					
T042	Horse Chestnut	190	5		Moderate	N3.0, E3.0, S3.0, W3.0	Infected with Bacterial Bleeding Canker: multiple stem bleeds, dieback and lack of vigour within the canopy.	U	Fell to ground level.	3
		2.28	0-2m		SM	Moderate				
Yes		16.3			<10 Years					

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required	Priority
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand				
		RPA (m ²)	Aspect	Aspect	SULE	Ground Cover				
T043	Sycamore	400	14		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. Minor deadwood. No indicators of disease/decay. Tight unions on scaffold limbs.	C2	No work required.	4
		4.8	2.1-4m		EM	Moderate				
Yes		72.4			10 + years					
T044	Maple sp.	540	14		Moderate	N6.0, E6.0, S6.0, W6.0	Fair condition. Minor deadwood. No indicators of disease/decay. Tight unions on scaffold limbs. Included bark.	C2	No work required.	4
		6.48	2.1-4m		EM	Moderate				
Yes		131.9			10 + years					
T045	Sycamore	400	14		Moderate	N5.0, E5.0, S5.0, W5.0	Fair condition. Minor deadwood. No indicators of disease/decay. Tight unions on scaffold limbs.	C2	No work required.	4
		4.8	2.1-4m		EM	Moderate				
Yes		72.4			10 + years					
T046	Sycamore	350	9		Moderate	N4.0, E4.0, S4.0, W4.0	Fair condition. Minor deadwood. Contorted growth.	C2	No work required	4
		4.2	2.1-4m		SM	Moderate				
Yes		55.4			10 + years					
T047	Sycamore	200	6		Moderate	N3.0, E3.0, S3.0, W3.0	Fair condition. Minor deadwood. Bark wounds at base of stem.	C2	No work required.	4
		2.4	2.1-4m		SM	Moderate				
Yes		18.1			10 + years					
T048	Weeping Willow	400	8			N4.0, E4.0, S4.0, W4.0	Dense ivy covering. Ivy obscures inspection.	C1	Remove Ivy to ensure not masking major faults.	3
		4.8	0							
Yes		72.4			10 + years					

Appendix C

Schedule of Works

SCHEDULE OF WORK

Parish Council Land, Waterbeach, Cambridgeshire

Surveyed By: Becky Barton

Surveyed: 27/01/2015

Managed By: David Carmichael

Tree No.	Species	Work required	Priority
T006	Horse Chestnut	Fell to ground level.	2
A002	Spruce, Cherry, Oak, Ash, Hazel	Remove Ivy.	3
A003	Scots Pine, Cypress sp.	Remove Ivy to ensure not masking major faults.	3
G006	Lime x19, London Plane x1	Remove major deadwood.	3
T004	English Oak	Remove major deadwood.	3
T005	Norway Maple	Pollard at 5 metres.	3
T015	Horse Chestnut	Remove most southern limb featuring major cavity at 3 metres.	3
T041	False Acacia	Fell to ground level.	3
T042	Horse Chestnut	Fell to ground level.	3
T048	Weeping Willow	Remove Ivy to ensure not masking major faults.	3

Schedule of Enhanced Monitoring

Parish Council Land, Waterbeach, Cambridgeshire

Surveyed By: Becky Barton

Surveyed: 27/01/2015

Managed By: David Carmichael

Tree No.	Species	Work required	Priority
T007	Common Ash	Monitor annually (lack of vigour).	3

Appendix D

Explanatory Notes

Explanatory Notes

Categories

Below is an explanation of the categories used in the attached Tree Survey.

No Identifies the tree on the drawing.

Species Common names are given to aid understanding for the wider audience.

BS 5837 Main Category Using this assessment (BS 5837:2012, Table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing:

Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years;

Category B - Those of moderate quality with an estimated remaining life expectancy of at least 40 years;

Category C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm;

Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS 5837 Sub Category Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows:

Sub Category 1 - Mainly arboricultural qualities;

Sub Category 2 - Mainly landscape qualities;

Sub Category 3 - Mainly cultural values, including conservation .

Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.

DBH (mm) Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.

Age Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.

V Veteran. An over-mature specimen, usually of high value due to either its age, size and/or ecological significance

D Dead.

Height	Recorded in metres, measured from the base of the tree.
Crown Base	Recorded in metres, the distance from ground and aspect of the lowest branch material.
Lowest Branch	Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.
Life Expectancy	Relates to the prospective life expectancy of the tree and is given as 4 categories: 1 = 40 years+; 2 = 20 years+; 3 = 10 years+; 4 = less than 10 years.
Crown Spread	Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.
Minimum Distance	This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.6).
RPA	This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority”. The RPA is shown on the drawing.. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority’s tree officer.
Water Demand	This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 “Building Near Trees”.
Visual Amenity	Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows: Low An inconsequential landscape feature. Moderate Of some note within the immediate vicinity, but not significant in the wider context. High Item of high visual importance.
Problems/ Comments	May include general comments about growth characteristic, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.
Work Required (TS)	Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the “Problems/comments” category.
Work Required (AIA)	Identifies the tree work specifically necessary to allow a proposed development to proceed.

Priority

This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey.

1 Urgent – works required immediately;

2 Works required within 6 months;

3 Works required within 1 year;

4 Re-inspect in 12 months,

0 Remedial works as part of implementation of planning consent.

BS 5837:2012 Terms and Definitions

Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. <i>NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.</i>
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of a project.
Root Protection Area (RPA)	Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision. NOTE - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural component(s) of a tree that supports its branches.
Structure	Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Tree Protection Plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Veteran Tree	Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. NOTE - these characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.

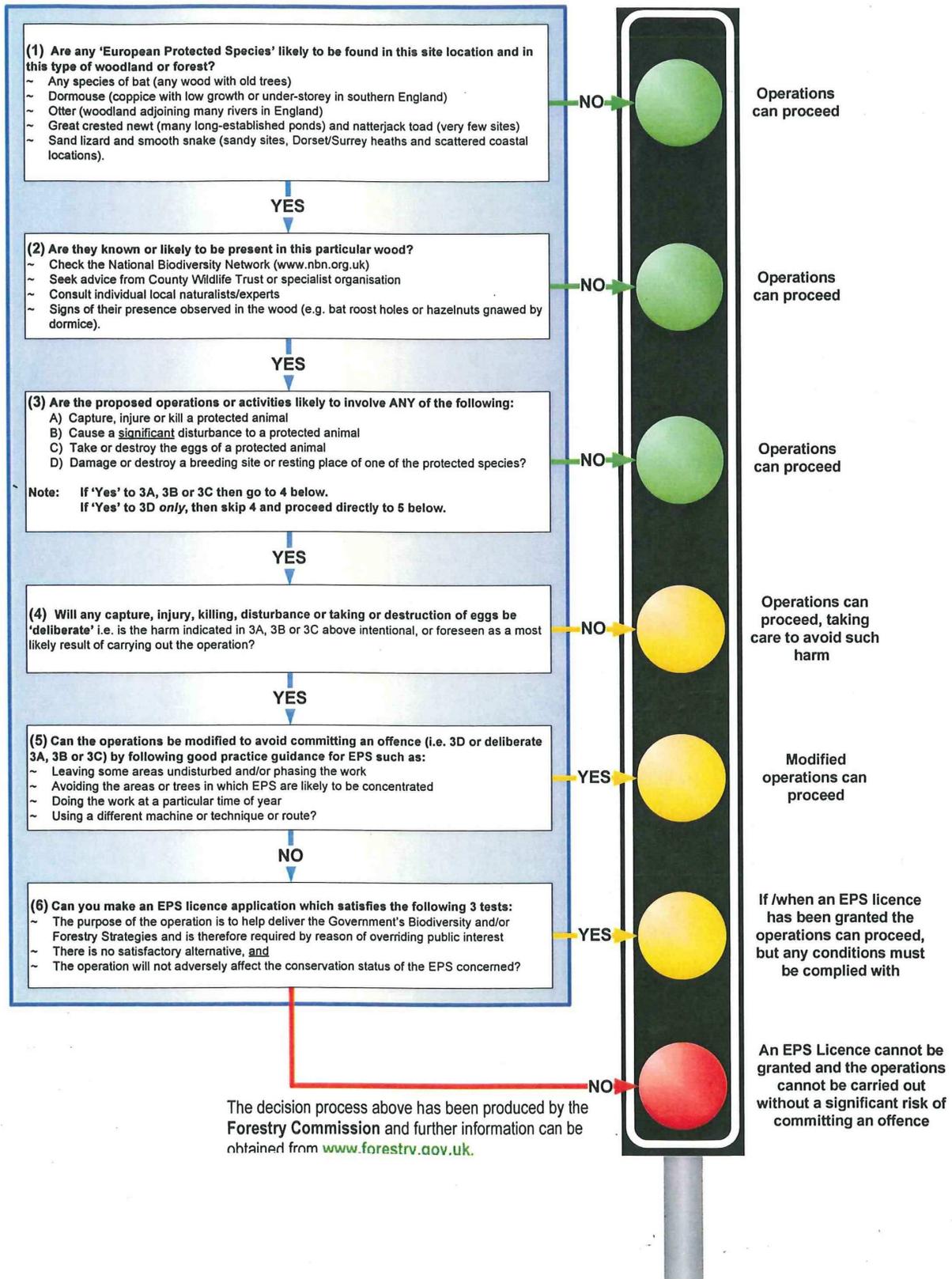
Appendix E

Advisory Information & Sample Specifications

European Protected Species and woodland operations

Decision tree to aid planning of woodland operations and protecting EPS (v.1)

The diagram below illustrates the questions that woodland managers and operators should consider when deciding whether they need to apply for an EPS licence. It should be noted that the diagram presents a simplified overview of the decision-making process.



Appendix F

Hayden's Drawing

- Arboricultural Impact Assessments ●
- Arboricultural Method Statements ●
- Tree Constraints Plans ●
- Arboricultural Feasibility Studies ●
- Shade Analysis ●
- Picus Tomography ●
- Arboricultural Consultancy for Local Planning Authority ●
- Quantified Tree Risk Assessment ●
- Health & Safety Audits for Tree Stocks ●
- Tree Stock Survey and Management ●
- Mortgage and Insurance Reports ●
- Subsidence Reports ●
- Woodland Management Plans ●
- Project Management ●
- Ecological Surveys ●

