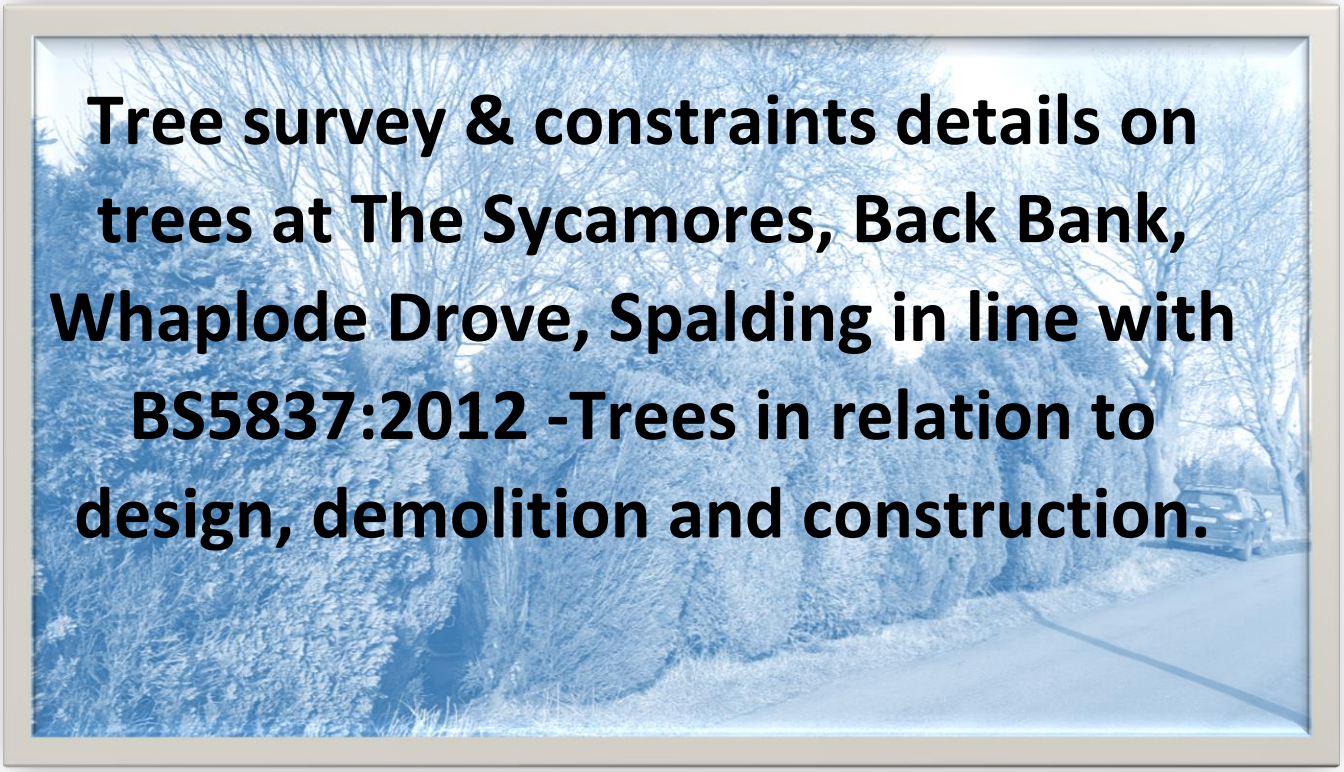


Tree survey & constraints details on trees at The Sycamores, Back Bank, Whaplode Drove, Spalding in line with BS5837:2012 -Trees in relation to design, demolition and construction.

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Tech Cert (Arbor A)

Date: 15/03/18

Ref: Sycamores/AIA

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1. Instructions

This report was commissioned by John Dadge of Barker Storey Matthews, with instruction to prepare a report using an illustrative layout in line with *BS5837:2012 Trees in relation to design, demolition and construction - Recommendations.*

The objectives of this report are as follows:

- To make an assessment of the trees' condition and identify any faults.
- To provide recommendations in line with BS5837:2012.

2. Introduction

This document has been prepared to fulfil the requirements for the proposal in accordance with the Department for Communities and Local Government guidance on information requirements and validation and is set out in compliance with British Standard 5837 Trees in relation to design, demolition and construction recommendations 2012.

The initial tree survey is considered to be compliant with BS5837:2012.

At the time of the survey, only an indicate layout was provided, not a Topo, as such, all trees considered likely to be affected by the proposal were surveyed apart from NT6-NT8, the details are given in Appendix 3 Table.

Due to the low numbers of trees, tags were not used but it is clear which trees are which.

The site surveyed is located just off the B1166 along Back Bank, it is the last plot north of Back Bank before the agricultural fields.

The site is screened from the road by conifer hedges.

The site itself is part of the existing garden at the Sycamores.

This report addresses the arboricultural issues relating to proposed development at the above site and identifies the arboricultural constraints.

If all the guidelines and principles outlined in this report are not adhered to, as with all development sites, there is a risk that the construction activities will result in damage to and potentially the death of the retained trees. Damage to the trees will significantly increase the risk of their health declining and may increase the risk of their complete or partial failure.

The success of the recommendations set out in this report are dependent on the development adhering to the principles set out within, which are to be approved and enforced by the Local Planning Authority (LPA). If the recommendations contained within this document are acceptable to the LPA then it is suggested that they be controlled by standard planning conditions.

3. Tree survey

The tree survey process consisted of a ground-based visual inspection only and is applied only to the area proposed for development.

The survey includes an individual tree number listed sequentially as per the provided plan, tree Species in both its common and botanical name, its height, stem diameter measured at 1.5m from ground level, spread of the radius of the crown by cardinal points, height of the crown above ground level, age classification its general condition and any general conditions structural or biological defects noted during the survey. An estimate of the remaining safe life expectancy (SLE) and the category as defined in BS 5837:2012 Recommendations cascade chart for tree quality assessment.

The root protection area (RPA) will be calculated from the stem diameter and this will identify the area which will require special protection during the works.

The survey data table is in the appendix attached to this report, and trees, their crown spread and the RPA are plotted onto the associated plan.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1, Table 2. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site. This assists informal decisions concerning which trees should be removed or retained should development occur. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

Categories A, B and C cover trees that should be a material consideration in the development process, each with three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural (nature conservation) values. Category U trees may have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. In assigning trees to the A, B or C categories, and the presence of any serious disease or tree–related hazard is taken into account. If the disease is considered fatal and/or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U with a recommendation for work or even removal, even if they are otherwise of considerable value.

Category (A): Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

(i) Trees which are particularly good examples of their species especially 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);

(ii) Trees, or groups of trees 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);

(iii) Trees or groups of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B): Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

(i) Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;

(ii) Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site;

(iii) Trees with clearly identifiable conservation or other cultural benefits.

Category (C): Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm and may comprise:

(i) Trees not qualifying in higher categories;

(ii) 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;

(iii) Trees with very limited conservation or other cultural benefits.

Category (U): Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. These trees will be in such a condition that any existing value would be lost within 10 years and which should in the current context be ignored or removed for reasons of sound arboricultural management. Trees within this category are:

(i) 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 category U trees;

(ii) Trees that are dead or are showing signs of significant, immediate or irreversible overall decline;

(iii) Trees infected with pathogens of significance to the health and or/safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality.

Detail of the tree survey is given in Appendix 1, Table 2.

The Soil type was not assessed.

This report is valid for one year from the date of site inspection. The condition of trees can change following severe weather conditions, the effects of diseases and pests, and other abiotic factors.

4. Legal Constraints

Where Local Planning Authorities assess trees as beneficial to the wider community in terms of their amenity value, they may be protected by a Tree Preservation Order (TPO).

If trees protected by a TPO or within conservation areas are cut-down, topped, lopped, uprooted or wilfully damaged or destroyed, the owner of the tree(s) and the contractor responsible for the work can both be legally prosecuted. The current maximum fine is £20,000 per tree at the Magistrates Court or unlimited fine at the Crown Court.

Trees that are dead or dangerous are exempt from legislation. It is common good practice to notify the LPA of intention to carry out work to trees that fall into these categories, preferably with some notice (e.g. one working week).

A leaflet produced by the DTLR (Protected Trees), covers the issues raised by this legislation.

Any works prescriptions for protected trees can be dealt with by way of inclusion into a Planning Application for development purposes; this avoids the need to make a separate tree application.

The current legal status of these trees has not been checked with the LPA and it is advised that the LPA are contacted prior to any tree works commencing.

Statutory wildlife obligations: The Wildlife and Countryside Act 1981 as amended by the Countryside and The Habitat Regulations 2012 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 should be obtained before undertaking any works that might constitute an offence.

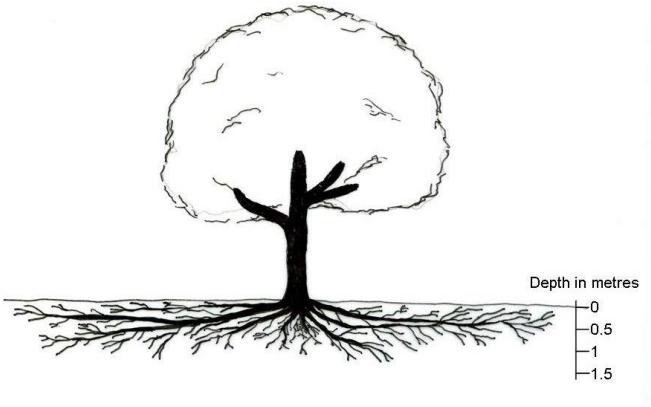
5. Arboricultural considerations in relation to development.

Rooting structure

Rooting structure is a key issue when dealing with trees and development. To ensure the survival of trees the British Standard Institute has introduced the concept of a Root Protection Area (RPA). The RPA is an area surrounding a tree that contains sufficient rooting volume to ensure the tree's survival and is represented in square metres. (BS5837 2012 discusses the extent and for of a trees root system.)

The following diagram represents the typical rooting pattern of a tree. Note that 90% of the trees roots are usually located within the top 1m of soil and that roots may spread well beyond the canopy. Therefore, no works are allowed within the RPA. Even a small trench 0.5 metres deep to accommodate a cable or drain may lead to the loss of the tree. When work is proposed or is absolutely necessary within the RPAs of retained trees the proposals will only be considered if supported by an agreed robust and realistic Arboricultural Method Statement, following recommendations within BS 5837 2012.

Typical rooting structure of a tree



To successfully integrate trees into a development it will be necessary to allow enough space in the design to allow trees to mature and flourish and to agree protection measures during the entire construction phase. Trees should be considered at the earliest design stage to allow them to be successfully integrated into new development, a survey of trees on and adjacent to the site should be one of the first steps in the design process.

How can trees be damaged?

Compaction of the soil

When soil is compacted, the soil structure is damaged by removing the spaces between soil particles preventing the exchange of gases and uptake of nutrients by trees. The storage of materials, including bricks, soil, gravel and cement, and the movement of vehicles can cause compaction. One vehicle movement can cause sufficient compaction to damage a tree. Compacted ground may alter soil drainage, resulting in the ground becoming waterlogged. The storage of materials and the movement of vehicles within RPAs will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Excavations

Excavations within the RPA are likely to cause root severance. This may lead to loss of vigour, reduced uptake of water and nutrients, allow access for decay organisms and may compromise the tree's stability. Under exceptional circumstances, where excavation may be justified, hand digging will be required and the presence of an arboricultural consultant to supervise the works will be required on site.

Ground level changes

Both reduction and raising of soil levels can be detrimental even if this is only by a few centimeters. Reducing ground levels may sever roots, and can increase the drainage of a site thereby reducing water availability. Raising ground levels can cause compaction, and suffocate roots. There will be a presumption against the changing of ground levels within RPAs. Changing of ground levels within RPAs will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Impact damage

This can be caused by machinery and includes torn branches, and damage to bark and trunk. Damaged areas of trees can allow the entry of decay organisms and reduced vigour. There will be a presumption against the movement of machinery and equipment within RPAs. The movement of machinery and equipment will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Soil contamination

This can be caused by the spillage of oil, fuel and chemicals, mixing cement or other materials. To prevent leaching through the soil where significant tree roots can be found, all chemicals should be kept in a safe storage area downhill from trees at least 10m from the RPA. There will be a presumption against the storage of chemicals within 10m of the

RPAs of retained trees and storage will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Fires

Conducted and radiated heat as well as flames will damage trees resulting in the loss and damage to both major and fibrous roots, and damage to the trees vascular system under the bark even if the bark does not appear burnt. Keep fires a minimum of 10m from the outer crown spread of any retained trees or vegetation. If this clearance is not achievable, all waste must be disposed of off-site.

6. Tree survey findings

In line with BS5837, a total of 4 trees on site were surveyed along with 2 hedges.

Street Google shows that the 2 hedges were historically maintained.

There are a further 4 Cypress (NT5-NT8) on the boundary to the existing property which were not identified on the sketch plan that I had. Whilst I acknowledged these trees when on site, I did not assess them in line with BS5837. As such only estimates based on the subsequent Topo along with basic information following a cursory inspection have been provided for these.

NT1 is a poor-quality Sycamore that has been topped at 4m, it is in poor condition with the bark missing from approximately half the main trunk. There is advanced decay at the old knuckle point.

NT2 is a semi-mature Walnut in reasonable condition apart from early decay channels on 2 of the mid crown scaffolds.

NT3 is a multi stemmed semi mature Ash with a decay channel from ground level to 2m on 2 of the main trunks. The tree appears to have been historically topped at 6m.

NT4 is a multi stemmed Judas tree in average condition.

H1 is an unmanaged Cypress hedge that appears to be reasonable healthy.

H2 is a poor quality ornamental mixed variety Cypress hedge with large areas of advanced die back, this could be due to Cypress hedge mite/aphid, equally it may be as a result of salt damage from the road.

NT5-NT8 are ornamental Cypress which have been maintained historically but more recently neglected and are considered to be of average quality.

7. Constraints

Public visual amenity value

It is considered that only NT2 (Walnut) provides any real public visual amenity value. NT3 (Ash) on the rear boundary is screened on approach from the west by the houses and by off-site verge trees as seen from the east.

NT1, NT4 & NT5-NT8 within site are largely screened by the boundary hedge.

The tree constraints plan can be found at Appendix 2.

8. Recommendations

I am of the opinion that the hedges and other Cypress within site should ideally be replaced due to their condition and the fact that they are non-native.

NT1 Sycamore should be felled due to its condition.

NT2 Walnut should be retained.

NT3 could be retained however due to the faults identified along with relatively low public visual amenity value, I would consider that in the context of new development and sustainability, it is also replaced.

NT4 should also be replaced as it does not provide any public visual amenity value.

Any layout needs consider the RPA, crown spread and shade pattern of the Walnut.

I would suggest that a strong, sustainable and native landscape scheme is put forward in mitigation for the loss of the remaining trees. Ideally this should be a mixed native hedge along the boundaries with specimen standard trees within site, predominantly along the rear boundary.



J Wilcockson

15th March 2018

Appendix 1: Tree Inspection/Survey Results

Table 1 SURVEY KEY: Abbreviations and categories used in the survey are as follows:

Tree Ref.	As per corresponding number on plan	
Species	Common name and botanical name in italics.	
Height	Estimated height in metres	
Ø	Diameter measured in millimetres at 1.5m above ground level. # indicates estimate	
Branch spread	Measured in metres from the stem to limit of canopy to four cardinal points, N, S, E, W	
H.F.S.B/D.	Height (in metres) of First Significant Branch and Direction.	
H.C.C.	Height of crown clearance - the height to the lowest branch attachments	
Age Class	A description of the life stage of the tree.	
	NP	Newly Planted – up to three years from planting in the stage leading to establishment
	Y	Young – Less than 1/3 of the natural life span
	EM	Early Mature – Between 1/3 and 2/3 of the natural life span
	M	Mature – Over 2/3 of the natural life span
	OM	Over Mature – Over 2/3 of the natural life span and in an obvious state of decline
	V	Veteran – Older than the typical age range of the species and has high conservation and amenity value
Condition: Physiological and Structural	Description of the observed Physiological (vital phenomena / organic functions) and Structural (supporting or essential framework) of the tree	
	Good	A tree with no visible defects
	Fair	A tree with minor defects that if necessary can be addressed through maintenance or are of no long term significance
	Poor	A tree with major defects that cannot addressed through maintenance and could lead to its early decline
	Dead	Without life
	In addition, specific diseases, defects or faults are described.	
Preliminary Recommendations	Recommendations for tree work where observed as necessary, including further investigations of suspected defects which may require more detailed assessment. If blank no works are recommended. CBR – could be retained.	

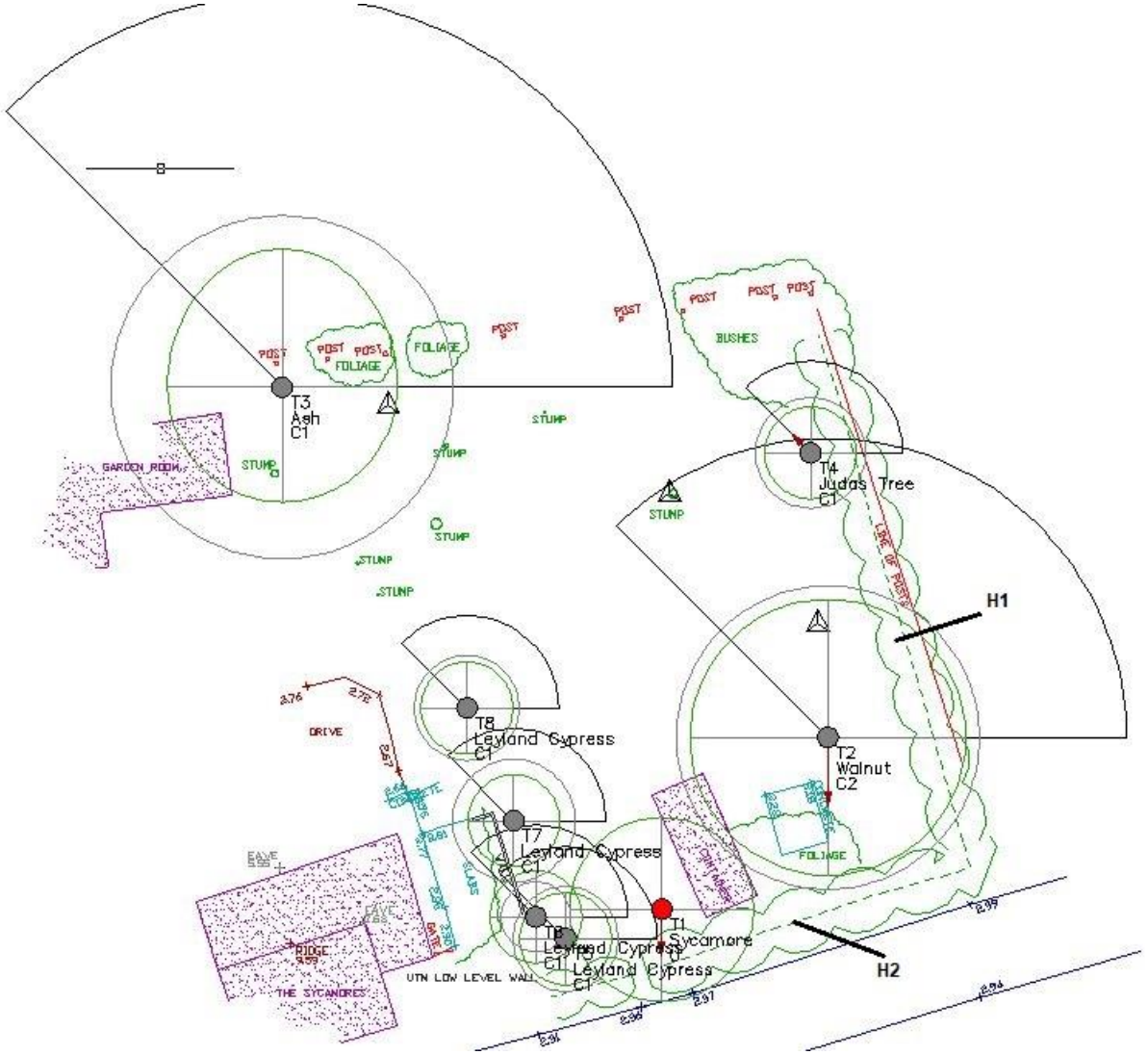
S.U.L.E.	Safe Useful Life Expectancy - estimated remaining contribution in years			
	Less than 10 years	10-20 years	20 -40 years	More than 40 years
BS Cat.	Category Grading according to BS5837: U or A, B, C.			
Root Protection Area. (RPA)	The root protection in m², as area and radial distance as measured from the centre of the tree stem. Where an # is present the R.P.A. cannot be achieved due to ground constraints, or it is located outside the site.			
Miscellaneous				
MS	Multiple stems			
GL	Ground Level			
Cavities	The physical size of cavities is measured in the following order: Height x Width x Depth. Measurements given are in millimetres.			
DW	Deadwood considered for removal. Considered significant in size when at least 50mm in diameter x 1000mm length. Smaller sized pieces are not considered for removal unless stated.			
IBU	Included Bark Union – bark growing in the joint of a union, possibly problematic as the incremental growth forces limbs of the union apart possibly causing at least one to fail over time.			

The following pages show the results of the tree inspection. A '#' adjacent to a figure within the table indicates an estimated measurement.

Client: BSM date: 16/02/18 Surveyor: John Wilcockson Weather: Dry

Tree Ref	Species	Age Class	BS Category	Ø (mm)	Stem count	Height (m)	Lowest crown height.	1st sig branch & direction	SULE	N	E	S	W	Condition: Physiological and Structural	Preliminary recommendations	RPA (m)
NT1	Sycamore *Acer pseudoplatanus*	M	U	730	1	8	4	4S	20+	4	4	4	4	Poor condition topped at 4m, extensive reaction growth, significant decay channel from ground level to 4m. Tree centre is in advanced stage of decay.	Fell	8.8
NT2	Walnut *Juglans regia*	M	B2	550	1	13	1	3S	40+	6	6	6	6	Fair, Early decay channels on 2 scaffolds.	Retain	6.6
NT3	Ash *Fraxinus excelsior*	M	C1	340 140 320	3	17	3	4S	40+	6	5	5	5	Fair, Decay channel from ground level to 2m on 2 of the main trunks. Appears to have been historically topped at 6m.	Consider replacing as poor structurally	7.6
NT4	Judas Tree Cercis siliquastrum	SM	C1	200#	1	4	2	1NW	20+	2	2	2	2	Historically topped at 1.5m approx., multi stem at that point with weak unions and some moderate deadwood	Fell as poor structurally	2.4
NT5-NT8	Cypress sp	SM	C1	200#av	-	4 av	-	-	-	-	-	-	-	Fair, unmanaged Cypress	Fell/replace	2.0 av
H1	Cypress sp	SM	C2	-	-	4-6M	0	-	20+	-	-	-	-	Unmanaged Cypress hedge, fair condition	Retain	-
H2	Cypress sp	SM	U	-	-	4-6M	0	-	10+	-	-	-	-	Ornamental variety with large areas of dieback	Fell/replace	-

Tree constraints plan



North.
(Indicative)

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