

**TREE CONDITION SURVEY  
&  
RECOMMENDATIONS  
For  
Douglas Crescent Gardens**

For and on behalf of:

Douglas Crescent Gardens Committee  
Edinburgh

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## CONTENTS

1. INTRODUCTION	3
2. SCOPE AND LIMITATIONS	3
3. SURVEY METHODOLOGY	4
4. SITE	6
5. TREE OBSERVATIONS	7
6. MANAGEMENT ISSUES	9
7. RESULTS AND REMEDIAL ACTION	11
8. RECOMMENDATIONS	15
9. CONCLUSIONS	15

APPENDIX 1	Species list
APPENDIX 2	Summary of recommended remedial works
APPENDIX 3	Tree condition categories
APPENDIX 4	Tree Survey Schedule-all trees
APPENDIX 4a	Prioritised Tree Schedule
APPENDIX 5	Map 1 – Remedial prioritised arboricultural work
APPENDIX 5a	Map 2 - Remedial arboricultural work by type
APPENDIX 5b	Map 3 – Category ‘A’ trees

# TREE CONDITION SURVEY AND ARBORICULTURAL REPORT DOUGLAS CRESCENT GARDENS, EDINBURGH

## 1. INTRODUCTION

I have been instructed to carry out a tree condition survey of the trees within the grounds of Douglas Crescent Gardens, Edinburgh by the Gardens' committee. This report has been produced in particular to identify trees which pose a potential hazard, and recommend remedial action in relation to such trees in order to reduce or eliminate the potential to cause harm to people or property.

I have surveyed all trees within the grounds of the garden of a diameter greater than 300mm as well as a number below this size. A total of three hundred and eighty five trees have been inspected.

The report places emphasis on trees with recognised defects, and trees which, due to their location and/or size, pose a significant potential hazard. It also seeks to address the need for preventative action and ongoing management to improve the condition of the trees in general and to reduce the need for, and cost of future remedial work.

I strongly recommend that tree hazard management is addressed in a systematic manner in future which includes regular inspections of trees – most frequent in the case of trees identified here as presenting an appreciable hazard.

### **Background**

A tree survey was conducted around 9 years ago, by Edinburgh City Council, and my understanding is that that some remedial work was undertaken at this time but that there has been little proactive management of the trees in recent times.

The trees lie within the Conservation Area and are subject to statutory protection. Thus it will be necessary to obtain the consent of the Local Authority before carrying out any remedial tree works recommended in this report.

## 2. SCOPE AND LIMITATIONS

The findings and recommendations contained within this report are valid for a period of twelve months from the date of survey (i.e. November 2012). Trees are living organisms subject to change and it is strongly recommended that they are inspected on a regular basis for reasons of safety.

The recommendations given relate to the site as it exists at present, and to the current level and pattern of usage. The degree of risk and hazard may alter if the site is altered, and as such will require re-inspection and appraisal.

Whilst every effort has been made to detect defects within the trees inspected, no guarantee can be given to the absolute safety or otherwise of any individual tree. Extreme climatic conditions can cause damage to even apparently healthy trees.

This report has been prepared for the sole use of the Douglas Crescent Gardens committee and members.

### 3. SURVEY METHODOLOGY

I inspected the trees during October 20011, by visual inspection from the ground. Tree inspection is based on ground level inspection of external features only - described as the 'Visual Tree Assessment' method per Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). Where trees require to be climbed to aid inspection, this has been identified.

All trees surveyed have been numbered using green plastic tree tags. The following information has been recorded in the Tree Survey Schedule, included as Appendix 4:-

- Tree number
- Age class: Young (Y), Early-Mature (EM), Mature (M), Late-Mature (LM), and Dead.
- Condition: A, B, C, and R, based on the tree condition categories identified in British Standard 5837:2005 (see Appendix 3 for definitions).
  - Category R: Trees in such condition and/or location that any existing value would be lost. These trees should be removed for reasons of sound arboricultural management.
  - Category A: Trees of high quality and value: likely to make a substantial future contribution (a minimum of 40 years is suggested).
  - Category B: Trees of moderate quality and value.
  - Category C: Trees of low quality and value or young trees with stems less than 150mm whose future contribution is uncertain.
- Physiological condition: Good, Fair, Poor as assessed from observation at ground level.
- Structure/Defects: visually recognised from observation at ground level.
- Hazard Assessment (for trees recognised as presenting an appreciable potential hazard):
  - S – size of defective part, scored 1 (low) to 4 (high).
  - P – Failure potential (likelihood of failure), scored 1 (low) to 4 (high).
  - Target: roads, buildings, parked cars, paths etc. associated with the probability of impact and frequency of use.
- Hazard Potential: High, Moderate (Med), Low, or Very Low, assessed from the combination of the factors above.

- Recommendations: Remedial work recommended, reducing or alleviating the potential hazard posed by the location and condition of the individual tree.
- Timing: 1 (most urgent) – 4 (least urgent); used to prioritise works, based on the degree of urgency associated with the potential danger or nuisance to be addressed, and in some cases the common sense need to carry out preventative or improvement works timeously.
  - Priority 1: Remedial work requiring urgent attention. Normally trees with a high hazard potential i.e. those with numerous or severe defects and a high target. Such work should be started as soon as possible and carried out within six months.
  - Priority 2: Normally trees with a moderate hazard potential or high nuisance value (such as trees overgrowing public areas). Such work should be completed within twelve months.
  - Priority 3: Generally trees with a low hazard potential i.e. moderate defects and a moderate to low target. Such work should be completed within a reasonable timescale, probably around 24 months but this may depend on the budget available.
  - Priority 4: Here remedial work is recommended in order to improve the future potential of the individual tree and/or surrounding trees and landscape. In some cases the potential hazard will also be reduced or alleviated. Work to be carried out in the next 2-5 years or possibly in conjunction with work of a higher priority to aid efficiency.

#### 4. SITE

Douglas Crescent Gardens is located at the West end of Edinburgh city centre, in the New Town. Douglas Crescent borders the Gardens along the Southern boundary, with Douglas Gardens (Road) bordering the East boundary. The Water of Leith flows beyond the North perimeter of the site and the tow path borders the Gardens at the North West of the site. A large stone wall forms the West boundary of the property, beyond which is a public path and mature woodland.

The Gardens can be viewed from Belford Bridge to the North East and is also prominent from Belford Terrace, to the North, across the Water of Leith (see plate 3).

The Gardens date back to the 1880's. An ordinance survey map of the Gardens is shown at appendix 5 dating from around this time.

The aspect is northerly and the main part of the Gardens is woodland, formed on steeply sloping ground which drops down to the Water of Leith. Beside Douglas Crescent, the topography is even and level and there is a wide open, lawn area at the South East, with attractive mature trees (see plate 2). The Gardens are relatively sheltered from the prevailing South Westerly winds by buildings to the south west and adjacent woodland to the West.

The stability of the wooded slopes has been an issue since the gardens were created and the trees have helped to stabilise the bank. Soils appear to be heavy in texture, and the northerly aspect will serve to reduce evaporation and increase soil water content.

There are four private gated access points from Douglas Crescent and a set of double gates from Douglas Gardens (which can provide access for vehicles); there is an additional gate from the well-used tow path beside the Water of Leith. The Gardens are private and there is no public access. There are no play facilities for children. Throughout the woodland areas, is a network of paths, which appears to be in limited use. Within the property the areas of highest use appear to be the open area of lawn and the path which runs parallel to and adjacent to Douglas Gardens.

The roadsides at Douglas Gardens and Douglas Crescent are both used for parking.

## 5. TREE OBSERVATIONS

The original planting dates back to the 1880's and included formal plating of Limes beside Douglas Crescent (see plate 1). These mature trees provide a prominent and attractive feature when viewed from Douglas Crescent. The tree cover beside the busy Douglas Gardens (road) is relatively dense and provides effective screening of noise and pollution, as well as visually. The main woodland is informal in nature and comprises mature Sycamore, Elm, Ash and Horse Chestnut, with an understory of Holly, self-seeded Sycamore and Elm. The species composition includes Yew, but there are no other coniferous species. The main canopy of mature broadleaved trees is dominated by several very large and striking mature Ash of generally good condition.

### General

A total of 385 trees have been surveyed, the majority of which have a diameter greater than 25cm.

I have recorded over thirty species, the most common of which are Sycamore, Holly, Elm and Lime, which together account for around 60% of the trees surveyed. The most commonly found species are given below, and a full list of trees surveyed is given in Appendix 1.

<u>Species</u>	<u>Number</u>
Sycamore	97
Holly	51
Elm species	45
Lime species	43
Ash	31
Horse Chestnut	23
Hawthorn	22
Beech	14
Wild Cherry	11
Yew	10
Norway Maple	8
Swedish Whitebeam	7
Field Maple	5

### Age Structure

There is a mix of age groups from young to late mature; the breakdown of those surveyed is as follows:

<b>Age Group</b>	<b>Number</b>	<b>Percentage</b>
LM (Late mature)	37	10%
M (Mature)	157	41%
EM (Early mature)	125	32%
Y (Young)	<u>66</u>	<u>17%</u>
	385	100

Around 50% of the trees are mature and late mature in age, many of which would have dated from the original planting. Of these, Sycamore (62) and Lime (33) are by far the most common, with Ash (18), Hawthorn (15), Elm (13) and Holly (12) also found in significant numbers. The Lime are nearly all located beside Douglas Crescent.

The 66 recorded Young trees include 19 Elm, 14 Sycamore and 10 Beech; however there are significant numbers of trees which have not been recorded for the purposes of this exercise, due to their small size. These include some Ash regeneration of good potential and small areas of planted trees, most notably near the north boundary at the east of the site.

### Tree condition

The trees in the gardens are of varied condition. Of the 385 trees surveyed, 222 trees (58%) have been recorded as B category or better i.e. trees of moderate and good condition. These trees are important for the medium and long term. I have recorded 42 trees as category R and C/R: trees of poor condition, which should be removed at varying stages, as part of sound arboricultural management. A very high proportion of these (88%) are young and early mature trees; they include suppressed trees with restricted crowns and a number of trees, especially Sycamores, compromised by Squirrel damage.

The condition of the tree population as a whole is encouraging, particularly among the mature trees, and there are few incidents of serious defects such as large basal cavities or noteworthy fungal infections by specialist wood decaying fungi.

It is worth noting that the maximum age of trees present in the Gardens is likely to be around 125 years. This is not particularly old for trees such as Ash, Elm, Lime and Sycamore which can live for 200 years or more, but is for trees with a shorter life span such as Whitebeam and Wild Cherry.

The few observed examples of trees infected by pathogens include: the Swedish Whitebeam, T1448, with stem decay and *Armillaria* species infection (see plate 5); the Wild Cherry, T1461, with fungal infection at the tree base (see plate 4) and the Beech located beside Douglas Crescent with apparent Beech Bark Disease (see plate 8). I have noted only 2 trees with basal cavities; these are: Horse Chestnut, T748 and Elm T689, which is infected with *Armillaria mellea*.

There is a considerable amount of Squirrel damage to trees within the gardens, especially among Sycamore of all ages. This is generally most obvious in young trees (see plate 13) but in mature trees, damage to branches in the crown can lead to dead branches and branch failure; hanging branches are often the result and can easily remain undetected. They are most dangerous where they overhang areas of high use such as roads or well used paths. I noted a considerable amount of dead wood and hanging branches in the Gardens.

A number of trees have extended leans and on steeply sloping, potentially unstable ground have the potential to fail. There are several such trees on the lower slopes of the woodland area (see plate 14) which lean towards the Water of Leith in search of



space. These trees should be monitored regularly for signs of instability i.e. movement in the root plate or cracking on the main stem.

I have recorded 60 'A' and 'A/B' category trees of generally good condition, which are well distributed throughout the Gardens. These include 23 of the mature Lime beside Douglas Crescent and a number of prominent, mature Ash (7), Sycamore (6) and Elm (4).

The majority of trees have been recorded as B category, of moderate condition; many have relatively minor defects such as crossing limbs, and small diameter dead branches.

## 6. MANAGEMENT ISSUES (IN BRIEF)

### Woodland areas

In my opinion, it is clear that the woodland area should be managed as high forest, with a canopy including Ash, Sycamore, Beech, Maple and Elm (for as long as possible). The under storey should continue to include Yew, Holly and Hawthorn and developing young and early mature trees.

### **Objectives**

The objectives of management for the woodland and the tree cover in general must include the need to maintain amenity and screening (see plate 3). Other objectives should include: improving wildlife habitat where possible and maintaining public safety.

### **Constraints**

The main constraints to management are:-

- The statutory protection afforded to the trees due to the Conservation Area.
- The need to maintain ground/slope stability.
- Cost.

These constraints are not conflicting. The trees are of benefit in stabilising the slope through their roots (as was pointed out in the report of 1999) and restructuring and opening gaps within the canopy should be kept to a minimum – sufficient to allow continuity of woodland.

### **Silviculture**

The woodland should be managed under a 'continuous cover' approach with careful and low intensive intervention. In practice this should involve removing low quality young and early mature trees in time to favour better quality trees with the potential to develop in to stable mature trees with adequate crown space and good rooting.

Mature trees should be removed as safety requires, providing space for younger trees to develop. Some minor thinning may be required in order to allow successful recruitment of new trees. As access is poor, felled trees should be left in situ and branch wood stacked to provide 'habitat piles', thereby reducing costs.

The biodiversity value of trees increases through age, and ideally trees should be left to grow old, dying from the crown downwards. However, biodiversity will have to be balanced with safety which must take precedence where necessary. Unstable trees should be removed prior to wind blow, even where there is no identifiable target, as this will obviously reduce slope stability.

The main dynamic is the increasing proportion of Sycamore, due to its capacity to regenerate on this site. Good quality Ash regeneration should be favoured where possible for the following reasons:-

- It grows well on this site, as demonstrated by a number of superb specimens.
- It has a relative tolerance of shade and therefore does not require large gaps for young trees to establish and develop.
- It casts a relatively light shade, allowing an under-storey to develop.
- Mature trees are less affected by Squirrel damage than Sycamore.

## **Prescriptions**

The recommendations contained within this report include specific actions which will help to address the continued management of the woodland area. This includes the removal of young and early mature trees of poor quality, including unstable trees, as well as other safety work.

Individual mature and late mature trees have been identified to be removed in order to aid site safety, which will provide space for trees in the understory to develop.

Removing the crown of the storm damaged Horse Chestnut (T723) will allow young trees to develop in the increased space and provide valuable dead wood habitat, while the tree's roots will continue to benefit ground stability.

I would be pleased to offer further specific advice in future regarding the management of the woodland areas.

## 7. RESULTS AND REMEDIAL ACTION

The survey results are as follows: Table 1, (appendix 2) gives a summary of all remedial works recommended for individual trees (from the tree survey schedule, appendix 4) as part of sound arboricultural management and/or to reduce the hazard posed by individual trees to acceptable levels.

A schedule of all recommended works is given, appendix 4a, with trees sorted according to the prioritised recommended timing of works.

A budget cost is given for guidance only and a contingency should be added.

Remedial work is prioritised from timing 1 (most urgent), to timing 4 (least urgent). Trees appearing in timing 1, as discussed, generally have severe or numerous defects and have a significant target i.e. they are located in areas of relatively high usage. Such work should be given urgent attention. Trees appearing in timing 2 generally pose a significant health and safety hazard or nuisance.

The approximate location of individual trees surveyed is indicated on map 1, appendix 5. This plan identifies trees requiring work, prioritised under timings 1, 2 and 3. Map 2 indicates the remedial work prescribed in timings 1 and 2, by work type (including further investigation and removal of epicormic growth and Ivy to aid future inspections).

### Urgent Remedial Works

There is relatively little remedial tree work recommended under timing 1, none of which is considered to be a matter of extreme urgency, although all such work should be carried out within the next 6 months.

Four trees are identified for urgent removal (within the next 6 months) as shown in table 2, below. Two of these trees: T1443 (mature Sycamore) and T1448 (late mature Swedish Whitebeam) are large trees with the potential to fail on to the road at Douglas Gardens (see plates 4 and 5). A further tree, T1592 (Sycamore), has collapsed since the survey across the main path (see plate 6).

Several mature and late mature trees have hanging branches over paths which require to be made safe; one of these, T1604 (Ash), has a hanging branch over a park bench. Of the 9 trees identified under timing 1, 6 are mature Sycamore.

Several trees are identified as requiring annual inspection and reporting in timing 1, as shown in Table 1, due to their condition and location:-

- Sycamore, T1610 has significant crown die-back, poor basal flare and *Armillaria sp.* infection note at the base. Any further deterioration in condition would warrant its removal.
- Norway Maple, T1626 is located behind a park bench and has a large historic stem wound, with notable on-going decay.

- Horse Chestnut, T1748 is an early-mature tree, located above the lower woodland path. It has a basal cavity which extends below ground and also up the main trunk, with on-going decay.
- Wild Cherry, T1461 has a healthy crown appearance but had clusters of fungal fruiting bodies at the tree base, at the time of inspection, indicating an infection by *Pholiota squarrosa*. It is located near to Douglas Gardens, a busy road.
- Elm, T1689 is located near steps but is weighted towards woodland. It has a small basal cavity with on-going decay, infected by *Armillaria mellea*, as noted by fungal mycelium. There are several historic broken branches throughout the crown and a large hanging branch with the potential to hit the steps.
- Wild Cherry, T1577, is a large tree located near to Douglas Crescent, with an unidentified fungal infection at the tree base which had disappeared on subsequent viewing. This tree should be re-inspected next year during October 2012.

The removal of Ivy and epicormic growth around the base of trees with a target such as the mature Ash, T1517 and Lime T1650, is given relative priority due partially to the low cost of such work and to the potential significance of defects occurring at the tree base and the union of major stems.

#### Trees recommended for removal

A total of 47 of the 385 trees surveyed have been recommended for removal. These trees should be removed as prioritised. The vast majority of these trees are of generally poor condition and are categorised C/R or R. Four are considered to be of sufficient hazard to be included in timing 1; eight trees are prioritised in timing 2 (see below).

**Table 2 below gives a summary of all trees in category 1 and 2 which are recommended to be removed.**

#### Other Significant trees

The Limes beside Douglas Gardens are historic pollards; many have developed numerous slender stems with weak attachments as a result (see plate 9). These trees should be pruned, as prescribed, to address these structural problems in order to prevent weak and damaged branches from failing over car parking areas.

Several large trees in the woodland area have heavy leans north towards space. The attractive Hornbeam T747 is one such tree (as shown on plates 11 and 12). The heavy lean and potentially unstable ground conditions give cause for concern, and failure could lead to the tree collapsing over the tow path beside the Water of Leith. To counter this, the tree has well- formed buttress roots which aid stability, and has considerable (strengthening) reaction wood in the lower trunk. I have prescribed a minor crown reduction in order to reduce the height of the tree, thereby increasing

stability and reducing the potential for failure to acceptable levels: the tree is in good condition and is likely to respond well to such treatment. I have in addition prescribed further investigation in to the stability of this tree. It would be very costly and unnecessary to carry out crown reductions to all trees with heavy leans but in my opinion this Hornbeam is a special tree and warrants this action.

Table 2: Trees recommended for removal; Timings 1 and 2

Tree No.	Age class	Species	Defect(s)	Condition (BS 5837)	Target
<b>Timing 1. Urgent (within 6 months)</b>					
443	M	Sycamore	Significant stem decay and crown die-back	R	Road (Douglas Gardens)
448	LM	S. Whitebeam	Decay at tree base with <i>Armillaria</i> sp. noted. Early leaf loss.	R	Road (Douglas Gardens)
592	M	Sycamore	Significant crown die-back. Notable lean and poor basal flare.	R	Path
733	EM	Elm	Unstable root plate and lean over path.	R	Path
<b>Timing 2. (6- 12 months)</b>					
499	Y	Elm	Slender tree collapsing over fence.	R	Fence by Water of Leith
523	EM	Ash	Partially collapsed tree by boundary fence.	R	Fence by Water of Leith
538	M	Hawthorn	Suppressed tree with decay	R	As above
539	EM	Sycamore	Tree compromised by Squirrel damage, with significant lean over fence.	C/R	As above
541	EM	Sycamore	Slender, unstable tree with extended lean towards fence	C/R	As above
736	EM	Whitebeam	Slender, unstable tree with apparent root heave and lean over path	C/R	Path
723	LM	H. Chestnut	Large tree with broken crown and structural weaknesses.	B/R	Path
784	M	Sycamore	Very large tree with pronounced lean and possible root plate movement causing displacement of steps.	B/R	Path/steps

### Future tree inspections

Further inspections should be carried out at regular intervals -every twelve months or so- with a little and often approach adopted rather than repeating full detailed inspections of all the trees every five years or so. The Gardener could, and no doubt does, carry out quick walk-by inspections of the trees to pick up on new hazards and developing problems in known trees, particularly after storms.

The benefit of this approach is that hazardous trees are identified early; another key advantage is that other trees which give caused for concern can be monitored over a period of time, and action delayed until required.

## 8. RECOMMENDATIONS

- a. It is advisable to prepare for urgent works: timing 1, immediately. Such work should be completed over the next 6 months.
- b. I recommend that remedial work prioritised under timing 2 should be carried out within twelve months.
- c. Works recommended in timing 3 and 4 should be carried out within the next 2-5 years or combined with more urgent works to aid efficiency.
- d. All tree works should be carried out in line with BS 3998 '*Recommendations for Tree Works*'.
- e. Dense ivy growth has impaired full inspection of some trees. These should be re-inspected following the removal of this growth.
- f. **Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland) Act 2004 provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions. Prior to undertaking any tree work, the Contractor should make a visual inspection of the tree for Bat roosts. If Bats and/or roosts are identified, Scottish Natural Heritage (SNH) should be contacted and an agreement made with regard to measures to be undertaken to protect Bats before undertaking any work which might constitute an offence.
- g. I strongly recommend that trees within the Gardens are inspected on a regular basis for health and safety reasons. A concise policy should be drawn up which outlines the timing and method of future inspections, placing greater emphasis on trees identified in this report as posing a significant potential hazard.
- h. The local authority should be consulted prior to carrying out any of the recommended remedial arboricultural work, as the trees are afforded statutory protection within the Conservation Area.

## 9. CONCLUSIONS

- a. Completing the remedial work specified in this report will very significantly reduce the potential hazard to people and property resulting from trees within the Douglas Crescent Gardens.
- b. The completion of management/preventative works specified as less urgent, prioritised under timings 3 and 4, will improve the condition and value of these trees and/or neighbouring trees and reduce the requirement for expensive remedial works in the future.

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## Appendix 1

### List of Species:-

Common Name	Latin Name	Number surveyed
Beech	<i>Fagus sylvatica</i>	13
Birch species	<i>Betula species</i>	1
Common Ash	<i>Fraxinus excelsior</i>	31
Common Lime	<i>Tilia x europaea</i>	43
Common Pear	<i>Prunus communis</i>	1
Copper Beech	<i>Fagus sylvatica</i> 'Purpurea'	1
Crack Willow	<i>Salix fragilis</i>	1
Elder	<i>Sambucus nigra</i>	1
Elm species	<i>Ulmus sp.</i>	24
English Elm	<i>Ulmus procera</i>	15
Field Maple	<i>Acer campestre</i>	5
Goat Willow	<i>Salix caprea</i>	1
Hawthorn	<i>Crataegus monogyna</i>	22
Holly	<i>Ilex aquifolium</i>	48
Hornbeam	<i>Carpinus betulus</i>	3
Horse Chestnut	<i>Aesculus hippocastanum</i>	23
Laburnum species	<i>Laburnum sp.</i>	2
Laurel	<i>Prunus laurocerasus</i>	1
Norway Maple	<i>Acer platanoides</i>	8
Poplar species	<i>Populus sp.</i>	1
Portuguese Laurel	<i>Prunus lusitanica</i>	1
Purple Plum	<i>Prunus cerasifera</i> 'Nigra'	1
Rowan	<i>Sorbus aucuparia</i>	1
Sorbus sp.	<i>Sorbus sp.</i>	1
Swedish Whitebeam	<i>Sorbus intermedia</i>	7
Sycamore	<i>Acer pseudoplatanus</i>	97
Variegated Holly	<i>Ilex aquifolium</i>	3
Whitebeam	<i>Sorbus aria</i>	2
Wild Cherry	<i>Prunus avium</i>	11
Wych Elm	<i>Ulmus glabra</i>	6
Yew	<i>Taxus baccata</i>	10



## Appendix 2

Table 1: Prioritised Summary of Recommended Remedial Works

Action	Species	Timing 1	Timing 2	Timing 3	Timing 4
Fell or Remove tree (or crown)	Sycamore	443, 592	539, 784	495, 533, 547, 565 595, 664, 693, 710, 742, 757, 768	522, 648
	Whitebeam	448	736	-	-
	Elm	733	499	501, 608, 724, 727, 728	451, 530, 753, 777
	Ash	-	523	484	-
	Hawthorn	-	538	-	-
	H. Chestnut	-	541, (723)	-	-
	Holly	-	-	419, 431, 572	439, 576
	N. Maple	-	-	491	507, 735
	W. Cherry	-	-	503, 512	-
	Laburnum	-	-	573	-
	Beech	-	-	-	716
	Total	4	8	24	11
Remove dead wood	Sycamore	561	-	643	546, 658,
	Lime	-	-	589, 645	-
	Elm	-	-	525	659
	Ash	-	-	-	672, 738
	Total	1	0	4	5
Remove stem(s) (Prune back branch)	Elm	-	-	452, 606, 607	699, 785
	Lime	-	-	-	555, 776
	Ash	-	-	-	672
	Sycamore	-	-	676	-
	H. Chestnut	-	-	750	-
	Total	0	0	5	5
Remove hanging branch.	Sycamore	529, 561, 569, 591, 635, 688	668	-	532
	Ash	604	-	-	-
	Lime	612	407	-	-
	Elm	689	-	-	-
	Hawthorn	-	603	-	-
	Yew	-	616	-	-
	Total	9	4	0	1
Crown Clean	Lime	-	404, 405, 407-10, 414, 423, 424	401-2, 411, 413, 416- 7, 420, 426-7	435, 577
	Sycamore	-	635	562, 571, 591	481, 653
	Ash	-	-	-	-
	Yew	-	-	430	-
	Whitebeam	-	-	449	454
	N. Maple	-	-	459	-
	Total	0	9	15	5
Crown Reduce	Lime	-	421	-	-
	Hornbeam	-	747	-	-
	Holly	-	-	432	-
	W. Cherry	-	-	594	-
	Laurel	-	-	-	415
	Total	0	2	2	1
Crown Thin	W. Cherry	-	-	461	599
	Ash	-	-	604	-
	Elm	-	-	-	471
	Acer	-	-	-	-
	Sycamore	-	-	766	-
	Total	0	0	3	2

Crown Lift	Yew	-	406	-	-
	Elder	-	460	-	-
	Elm	-	553	-	323
	Holly	-	580	-	339
	Ash	-	-	527	-
	H. Chestnut	-	-	543	-
	Total	0	4	2	2
Prune branches (remove suckers)	Lime	-	554	-	-
	Holly	-	-	783	436, (462), (470), 622
	Beech	-	-	722	-
	Total	0	1	2	4
Formative structural pruning	Lime	-	-	474	773
	Rowan	-	-	-	409
	Total	0	0	1	2
Annual inspection and reporting	Sycamore	610	-	-	-
	N. Maple	626	-	-	-
	H. Chestnut	748	-	-	-
	W. Cherry	461	-	-	-
	Elm	689	-	678	-
	Lime	-	568	-	-
	Total	5	1	1	0
Further Investigation (Decay detection)	W. Cherry	(557)	-	-	-
	Hornbeam	-	747	-	-
	Total	1	1	0	0
Sever Ivy to aid observation/remove epicormic growth/(Remove soil by tree base)	Ash	517	-	-	-
	Lime	650	682	-	-
	H. Chestnut	-	745	-	-
	Total	2	2	0	0

Key: 517 Post mature    610 Mature    745 Semi mature    532 Young

### Appendix 3: Cascade chart for tree quality assessment (from British Standard 5837:2005)

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
<b>Category R</b> Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	<ul style="list-style-type: none"><li>Trees that have a serious, irredeemable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.</li><li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch Elm Disease), or very low quality trees suppressing adjacent trees of better quality.</li></ul> NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of a bat box in nearby tree)			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria – Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
<b>Category A</b> Those of high quality and value; in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of semi-formal arboricultural features (e.g. the dominant an/or principal trees within an avenue)	Trees, groups or woodlands provide a definite screening or softening effect to the locality in relation to views into or out of the site, of these in particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historic, or commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
<b>Category B</b> Those of moderate quality and value: those in such a condition to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi – formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality.	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
<b>Category C</b> Those of low quality and value; currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape values, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			