

# Tilhill Forestry

## Tree Safety Inspection



Location: Dalston Parish Council

Prepared by Dylan Cammack FdSc

On behalf of: Dalston Parish Council

Date: 02/03/20

## TABLE OF CONTENTS

1	Summary
2	Management Summary
3	Survey Limitations
4	Hazard Evaluation
5	Scope of Inspection
6	Tree Schedule

### **Appendices**

1	Photos
2	Legislation
3	Pruning Practice
4	Pests and Diseases
5	References
6	Site Plans

## 1. SUMMARY

This survey has been carried out at the request of Dalston Parish Council to provide an assessment of tree condition. The aim of the survey was to identify any hazardous trees with a significant potential to fail, to specify works for the correction of any potentially hazardous defects or that may prolong the life of a tree and to provide an indication of the urgency with which these works should be carried out.

The survey covers the areas under the responsibility of Dalston Parish Council and encompasses all trees located within falling distance of public access areas within Dalston parish Church and The Green as agreed with Mr Paul Barton and Marcus Wright as per the 2014 tree survey.

All areas have been identified as high risk and as such a target rating of 'Frequent use' has been applied to the trees.

The survey was conducted on Wednesday 26<sup>th</sup> March 2020 in dry, cloudy conditions by Dylan Cammack. Investigations were carried out by visual inspection from the ground, using binoculars for closer inspection of any canopy features. Lower stem condition was further assessed by use of a mallet and probe. No digging or drilling was carried out. Prioritised recommendations for tree work are provided to address current tree condition and growth circumstances in the light of assessed risk of structural failure and target value. No documented information has been provided regarding the history of rooting disturbance or severance or changes in local ground conditions (soil levels, drainage patterns etc.) or the location of underground services.

The assessment is of a preliminary nature and as such no internal trunk decay detection devices or other invasive tools to assess tree condition have been employed. Nor have there been any soil excavations, soil or rooting sampling undertaken. This assessment is time limited and recommendations relate to conditions at the time of inspection. Tree growth is continual, and the effects of any debilitating factors may be progressive. Due to these dynamics, periodic tree assessments are necessary.

## 2. MANAGEMENT SUMMARY

There are two *Thuja plicata* trees (ref 181 and 182) adjacent to the B5299 within the Church grounds. There both showing signs of decay within the base of the stem. Decay in Thujas can be quite common and a further inspection with advanced decay detection equipment should be carried out to find out the true extent of the decay. This should be carried out within the next three months.



*Figure 1 shows tree 182 with a healthy crown.*



*Figure 2 shows the stem of tree 182 appear like a bottle neck, a key indicator of decay within the stem.*



*Figure 3 shows tree 181, a healthy crown and also swelling within the stem which could be an indicator of decay within the stem.*

Tree reference 183 East of the Church within the church grounds is a common Ash. The tree is showing some minor signs of stress with epicormic growth throughout the crown however there are no obvious visual defects. The ivy should be removed from the tree for any future inspections. The tree should be inspected annually as Ash dieback is now spreading fast



*Figure 4 shows tree 183 with some epicormic growth in the crown and some ivy up the stem.*



*Figure 5 shows the Ivy growing up the stem of tree 183*

Tree reference 184 (*Thuja plicata*) within the church grounds appears in good condition. The Ivy will need to be removed from the tree for future inspections.



Figure 6 shows the Ivy growing up the stem of tree 184. This will need to be removed.

Tree reference 185 is a *Quercus rubra* (also in the church grounds) with some large pieces of deadwood over the path and gravestones. These should be removed immediately. The Oak is generally in good health and appears safe once the deadwood has been removed.



*Figure 7 shows some deadwood on tree 185 over some gravestones. There is more within the crown which will need to be removed.*



*Figure 8 shows tree 185. The deadwood will need to be removed.*

Tree reference 186 is a Prunus on 'The Green' and is in moderate health. There is a small wound at the bottom of the tree with some decay. No work is needed.



*Figure 9 shows some decay at the base of tree 186*



*Figure 10 shows tree 186.*

Tree reference 187 is also a *Prunus* with decay in the stem. This should be checked at the next inspection for any signs of heeling or becoming worse at the point of decay.



*Figure 11 shows tree 187. The tree trifurcates at around 40cm where the decay is.*

Tree reference 188 is an *Aesculus hippocastanum* and must be felled. A fungal bracket (*Ceriporus squamosus*) was present and is associated with stem and limb failure. There was canker throughout the crown and decay in the stem.



Figure 12 shows the fungal bracket fallen from tree 188



*Figure 13 shows tree 188.*



*Figure 14 shows an open wound and decay on tree 188.*

Tree reference 189 is another Prunus. There is advanced decay within the stem and branch work. The tree will need to be removed immediately.



*Figure 15 shows tree 189 with advanced decay in the stem and crown.*

Tree reference 190 is an *Acer pseudoplatanus* and has decay in the stem. The decay is showing signs of successfully compartmentalising. The tree will need to be surveyed again in 12 months time.



Figure 16 shows tree 190 with some of the wounds.

Tree reference 191 is also an *Acer pseudoplatanus* with decay in the stem, cracked limb and major crown dieback. This tree will need to be removed.



Figure 17 shows tree 191 with crown dieback.

Tree reference 192 is an *Aesculus hippocastanum* with major deadwood, canker and fruiting bodies present (*Flammulina velutipes*). This disease indicates physiological decline and will need to be removed.



Figure 18 shows the fruiting body on tree 192



*Figure 19 shows canker throughout tree 192.*



*Figure 20 shows tree 192*

There is a small conifer with broken branches within the church grounds. These should be cut out over the next 6months. All other trees as per the photos appear healthy and need no work carried out.



*Figure 21 shows the broken branches which will need to be removed.*

Ivy poses a significant constraint to the successful surveying of trees; it is noted that there has been some effort made to cut and control the ivy growth on a number of trees. It is important that this continues and that all trees within falling distance of public access areas are maintained ivy free to allow the correct monitoring to be undertaken.

There are various species within the area surveyed including Ash. Ash Dieback has spread rapidly in large parts of the UK. Ash dieback is a serious disease caused by a fungus known as *Hymenoscyphus fraxineus*. The disease is usually fatal. The fungus is spread by airborne spores and there is no way to prevent the spread of the disease. The current recommendations for dealing with Ash dieback is to fell if there is less than 40% of the canopy remaining. There is also grant aid available through countryside stewardship to help with the costs of removing and replacing although there are certain requirements to meet in order to be eligible for the grant. Any Ash on site will need to be monitored and action taken if required.

## SURVEY LIMITATIONS

### Caveats & Disclaimers

- a) This report is prepared solely and exclusively for the person to whom it is addressed, and its contents must not be divulged to third parties without the written consent of Tilhill Forestry. Any third party referring to this report or relying on the information contained therein does so entirely at their own risk.
- b) The report relates only to those trees growing within the areas of survey, either as shown on the enclosed plan or as listed in the tree schedule. Trees out with the survey area were not inspected.
- c) The findings and recommendations contained in this report are valid for a period of 6 months from the date of survey. Trees are living organisms subject to change - it is strongly recommended that they are regularly inspected for reasons of safety.
- d) The recommendations 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, and the site may require re-inspection and appraisal.
- e) No guarantee can be given as to the absolute safety or otherwise of any individual tree. Extreme climatic events can cause damage to (or make unsafe) apparently healthy trees.
- f) Trees were inspected from the ground.
- g) The investigation may have been carried out on days with limited visibility and the report refers only to the conditions prevailing on the days that the trees were surveyed.
- h) Numerous potential defects that may affect a tree's health and safe useful life may not be detectable dependent upon the timing of the survey. Surveys prior to leaf flush cannot judge either the extent or size of the foliage and the effect of either abiotic or biotic factors on such foliage. Additionally, the decay mechanism that occurs in trees is often governed by wood decay fungi, these may only produce external fruiting bodies annually often from late summer through autumn and they themselves then decay during winter. Therefore, during winter and spring surveys, external symptoms may not be visible of decay that is occurring within a tree.
- i) Trees were inspected externally: no instruments (such as ultrasound or resistographs) were used to examine the tree internally.
- j) No underground or root system inspections were carried out and Tilhill Forestry was not aware of any underground conditions of compaction or changes in ground levels or aeration or drainage which may affect the trees, nor of any services, installations or any other excavations which may previously have taken place and which may have caused damage to root systems.
- k) No investigation has been carried out to determine whether the land under report is or has been in the past contaminated or polluted by any substances or organisms however occurring. Our report and any recommendations is therefore on the basis that all the land and its environs are free from any such

contamination or pollution and that no such polluting materials will be introduced onto the site or used during any construction works on the site.

- I) The survey is based on information and maps supplied by the client relating to site boundaries, hazards, utilities etc. No responsibility can be accepted relating to the accuracy of information received. No additional investigation was undertaken with regard to statutory designations, i.e. TPO, conservation areas, SSSIs, other than information and documents supplied by the client. Approval for felling or other work may require authorisation; such authorisation is not the responsibility of Tilhill Forestry and must be obtained by the client before felling or cutting commences.

## **Assumptions and Legal Limitations**

- a) Any legal description provided to the inspector/surveyor is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
- b) It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations or statutes.
- c) Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
- d) The inspector/surveyor shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
- e) Loss or alteration of any part of this report invalidates the entire report.
- f) Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the inspector/surveyor.
- g) Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the inspector/surveyor — particularly as to value conclusions, identity of the inspector/surveyor, or any reference to any professional society or institute or to any initialled designation conferred upon the inspector/surveyor as stated in his qualification.

### 3. HAZARD EVALUATION

#### Hazard Evaluation & Assessment

Identification and correction of structural defects may prevent damage to property or injury to people i.e. targets, the elimination of tree defects may also prolong the life of the tree.

Hazard assessment includes three components; the potential for the tree to fail; the environment that may contribute to failure, and the potential target. Each factor has an impact on the hazard rating of the tree.

#### Guidance Regarding Scoring

##### Failure Potential

1 = **Low** potential of failure – Defects are minor

2 = **Medium** potential of failure – Defects are present and obvious

3 = **High** potential of failure - Numerous and/or significant defects present

4 = **Severe** potential of failure – Severe defects e.g. heartrot decay brackets

##### Size of Part

1 = Most likely failure **less than 6 inches** in diameter at its largest point

2 = Most likely failure **6-18 inches** in diameter at its largest point

3 = Most likely failure **18-30 inches** in diameter at its largest point

4 = Most likely failure **greater than 30 inches** in diameter at its largest point

##### Target Rating

1 = **Occasional** use – e.g. jogging/cycle trails

2 = **Intermittent** use –B Roads

3 = **Frequent** use – A Roads

4 = **Constant** use – Motorways

##### Hazard Rating

This is simply the addition of the above scoring e.g. a maximum hazard rating of 12, and falls into the below categories:

3-5 = **Low Hazard Rating** – unlikely any remedial works will be required

6-8 = **Medium Hazard Rating** – Minor remedial works may be required

9-12 = **High Hazard Rating** – Major remedial works, felling or removal of target may be required

## 4. SCOPE OF INSPECTION

- Site Name                      Name of Estate and/or Site
- Date                              Date the individual tree was inspected
- Surveyor                        Name of the surveyor who carried out the survey on the individual tree
- Tree Reference                The reference number given to the tree which relates to the tree tag positioned on the tree and corresponds with the enclosed schedule detail.
- Species                         The botanical and common name of the individual tree.
- Age Class                      Age category of tree based on experience:
  - Young** – within first third of expected lifespan
  - Middle Mature** – within second third of expected lifespan
  - Mature** – within final third of expected lifespan
  - Over Mature** – with decline
- Height                         Estimated height range from ground level to the top of the canopy
- Summary Condition        Current general health and form of the tree:
  - Poor**

Poor health and vigour with significant defects requiring major works, felling or close monitoring to ensure safety.

### **Moderate**

Reasonable health, vigour and form. Some minor defects may be present including deadwood, damaged limbs and small areas of decay, but defects can be remediated.

### **Good**

Good health, vigour and form and free from significant defects

### **Dead**

The tree is dead

- Structural Condition    Biological and potential structural failure items within the tree
- Significance                The significance of the defect. If significant then remedial action is required
- Hazard Rating (see previous additional notes)

- Recommendations Prescriptions based upon the tree condition and hazard rating
- Remedial Work Time Estimated time that the remedial works will take based on man hours
- Urgency Prioritisation of works and recommended timescale to undertake remedial actions
- Inspection Frequency How often the tree/s should be inspected.

## 5. TREE SCHEDULE

Tree Ref	Species	Age Class	Height	DBH	Condition	Observation 1	Observation 2	Observation 3	Park to Fail	Failure Potential	Size	Target Rating	Target	Urgency	Recommendation	Inspection Frequency
181	<i>Thuja plicata</i> (Western Red Cedar)	Mature	20-25	1000	Good	Decay stem detection			Stem	Unlikely	450mm	Frequent	Road	3 Months	Inspection-Decay Detection	Annual
182	<i>Thuja plicata</i> (Western Red Cedar)	Mature	20-25	1000	Good	Decay stem detection			Stem	Unlikely	450mm	Frequent	Road	3 Months	Inspection-Decay Detection	Annual
183	<i>Fagus sylvatica</i> (Common Ash)	Mature	15-20	1000	Good	Ivy covered stem			none	Unlikely	450mm	Occasional moving	Path	6 months	Ivy-remove	Annual
184	<i>Thuja plicata</i> (Western Red Cedar)	Mature	20-25	900	Good	Ivy covered stem			none	Unlikely	450mm	Occasional moving	Path	6 months	Ivy-remove	Annual
185	<i>Quercus rubra</i> (Red Oak)	Mature	15-20	1000	Good	Deadwood-major			Deadwood	Likely	450mm	Occasional static	Path	Immediate	Remove deadwood and crown clean	Annual
186	<i>Prunus avium</i> (Wild Cherry)	Mid Mature	10-15	400	Moderate	Decay in stem			Stem	Unlikely	450mm	Occasional moving	Path	N/A	N/A	Annual
187	<i>Prunus avium</i> (Wild Cherry)	Young	5-10	450	Moderate	Decay in stem			Stem	Unlikely	450mm	Occasional moving	Road	N/A	N/A	Annual
188	<i>Aesculus hippocastanum</i> (Horse Chestnut)	Young	10-15	500	Poor	Fungal fruiting body present	Decay-limb	canker	Crown branchwork	Possible	450mm	Occasional static	Path	3 months	Fell	N/A
189	<i>Prunus avium</i> (Wild Cherry)	Young	5-10	400	Poor	Decay-limb	Decay-stem		Stem	Likely	450mm	Occasional moving	Path	Immediate	Fell	N/A
190	<i>Acer pseudoplatanus</i> (Sycamore)	Mature	15-20	800	Moderate	Decay-stem			Crown branchwork	Unlikely	450mm	Frequent	Road	N/A	N/A	Annual
191	<i>Acer pseudoplatanus</i> (Sycamore)	Mature	15-20	800	Poor	Crown dieback-major	Decay-stem	Crack in limb	Stem	Possible	450mm	Frequent	Road	6 months	Fell	N/A
192	<i>Aesculus hippocastanum</i> (Horse Chestnut)	Mature	20-25	1000	Poor	Deadwood-major	Fungal fruiting body present	canker	Crown branchwork	Possible	450mm	Frequent	Road	Immediate	Fell	N/A

## APPENDIX 1: Photos



*Figure 22 shows some compaction around the base of the trees in the field on 'The Green'.*



*Figure 23 shows some of the roadside trees surveyed on 'The Green'*



*Figure 24 shows a healthy tree with a metal guard around. This may be a good time to remove the guard before the trunk out grows the available space.*



*Figure 25 shows healthy trees within the Church grounds.*



*Figure 26 shows a healthy Holly within the Church grounds.*



*Figure 27 shows more healthy conifers within the Church grounds.*



*Figure 28 shows healthy mixed conifers within the church grounds.*



*Figure 29 shows a healthy Yew. Some of the lower branches may want to be pruned away from the head stones.*



*Figure 30 shows a row of Limes, all appear healthy with no work needed.*



*Figure 31 shows more healthy trees within the Church grounds*



*Figure 32 shows the row of Limes, all healthy with no work needed.*



*Figure 33 shows some conifers which appear healthy.*



*Figure 34 shows another healthy conifer.*



*Figure 35 shows another healthy Yew*

## APPENDIX 2: -LEGISLATION

### Health and Safety at Work etc. Act (1974)

#### Chapter 37: Section 2

'It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health safety and welfare at work of all his employees.'

'...the matters to which that duty extends include in particular...

*...so far as is reasonably practicable as regards any place of work under the employer's control, the maintenance of it in a condition that is safe and without risks to health and the provision and maintenance of means of access to and egress from it that are safe and without such risks.'*

### Management of Health and Safety at Work Regulations (1999)

#### Regulation 3: Risk Assessment

'Every employer shall make a suitable and sufficient assessment of:

- a) *The risks to the health and safety of his employees to which they are exposed whilst they are at work; and*
- b) *The risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking.'*

### Occupiers' Liability Act (1957)

#### Chapter 31: Section 2: Extent of occupier's ordinary duty

*An occupier of premises owes the same duty, the common duty of care, to all his visitors....*

The common duty of care is a duty to take such care as in all the circumstances of the case is reasonable to see that the visitor will be reasonably safe in using the premises for the purposes for which he is invited or permitted by the occupier to be there.'

### Occupiers' Liability Act (1984)

#### Chapter 3: Section 1

'An occupier of premises owes a duty to another (not being his visitor) in respect of any such risk... if

- a) He is aware of the danger or has reasonable grounds to believe that it exists.

- b) He knows or has reasonable grounds to believe that the other is in the vicinity of the danger concerned or that he may come into the vicinity of the danger (in either case, whether the other has lawful authority for being in that vicinity or not); and
- c) The risk is one against which, in all the circumstances of the case, he may reasonably be expected to offer the other some protection.'

## **Highways Act (1980)**

### **Part V: Improvement of Highways**

#### **Section 96(6)**

‘No tree, shrub... allowed to remain in such a situation as to hinder the reasonable use of the highway by any person entitled to use it, or so as to be a nuisance or injurious to the owner or occupier of premises adjacent to the highway.’

### **Part IX: Lawful and Unlawful Interference with Highways and Streets**

#### **Section 154(1)**

‘Where a hedge, tree or shrub overhangs a highway or any other road or footpath to which the public has access so as to endanger or obstruct the passage of vehicles or pedestrians, or obstructs or interferes with the view of drivers or vehicles or the light from a public lamp, a competent authority may, by notice either to the owner of the hedge, tree or shrub or to the occupier of the land on which it is growing, require him within 14 days from the date of service of the notice so to lop or cut it as to remove the cause of the danger, obstruction or interference.

*For the purposes of this section the following are competent authorities...*

...in relation to a road or footpath that is not a highway, the local authority in whose area the road or footpath is situated.’

#### **Section 154(2)**

‘Where it appears to a competent authority for any highway, or for any other road or footpath to which the public has access

- a) That any hedge, tree or shrub is dead, diseased, damaged or insecurely rooted, and
- b) That by reason of its condition it, or part of it, is likely to cause danger by falling on the highway, road or footpath, the authority may, by notice either to the owner of the hedge, tree or shrub or to the occupier of the land on which it is situated, require him within 14 days from the date of service of the notice so to cut or fell it as to remove the likelihood of danger.’

## **Permissive Paths**

A permissive path is not a public right of way, but a footpath or bridleway used by the public with permission of the landowner. It should have a notice displayed making it clear that the owner does not wish to dedicate the path as a public right of way and be closed at least once each year.

These can also be unofficial diversions from public rights of way.

A permissive path not being a public right of way is not in general subject to the law relating to signposting, maintenance and obstruction, The HO 1980 states "that any road or footpath to which the public has access" however the landowner may have a *common duty of care*, liability can be reduced by using a suitably worded notice "persons using this path do so entirely at their own risk".

'*presumed dedicated*' after 20 years the owner can register with the highway's authority. Also, the user of the route may by now have ancient rights to its use.

A permissive path can be closed at any time and does not have the status of a public right of way.

Maintenance may be the responsibility of the highway's authority?

## **Aspects of Law Influencing Tree Inspections**

### **COMMON LAW**

This is based on actual case law i.e. decisions made by judges over a number of years. Judges trying a similar case will usually abide by the decision or outcomes of the earlier case. New common law is constantly being made.

### **Cases of Importance:**

#### **"CAMINER & ANOTHER V NORTHERN & LONDON INVESTMENT TRUST LTD. 1949"**

"If a tree or part of a tree falls onto adjoining land or onto the highway and consequently causes damage or injury to property or to an individual, the owner of the tree will be liable only if it can be established that he has been negligent."

#### **"KENT V MARQUIS OF BRISTOL 1940"**

"If it can be shown that the owner of a tree knew or ought to have known that the tree was dangerous and that he took no steps to deal with it, he will be guilty of negligence and therefore liable for any damage or injury which may result.

**Note:** negligence may be described as omitting to do what a prudent or reasonable person would do, or doing what a prudent or reasonable person would not do,

### **WILLIAMS V DEVON COUNTY COUNCIL 1966**

This refers to the removal of a tree which had fallen onto the highway.

"If it can be shown that an owner took reasonable care to see that the tree did not cause an obstruction, the cost of removing it cannot be recovered from him. In this case, it was shown that the tree was sound and had been regularly inspected, and that this constituted reasonable care."

### **BROWN V HARRISON 1947**

"As the plaintive was passing along a road, a horse chestnut, which was standing some 18ft from the highway, fell on him. It was an old tree, the top branches of which were dead, and although there was a high wind blowing at the time it could not be considered exceptional. The defendants were held to be liable as the condition of the tree was such that it was evident that it was dangerous."

### **CUNLIFFE V BANKS 1945**

"An elm about 50 years old, which was subsequently found to be suffering from honey fungus, fell across a public road. The plaintiff's husband, riding a motorcycle, collided with the tree and later died of his injuries. It was shown that the defendant had taken all reasonable steps to discover what the condition of the tree was and that it could not have been known that it was likely to fall."

A person is not liable for nuisance constituted by the condition of his property unless he causes it, or by neglect of some duty allows it to occur, or, if it should arise without his own act or default, he fails to remedy it within a reasonable time after he had become, or ought to have become aware of it.

## **"KENT V MARQUIS OF BRISTOL"**

An elm blew down during a strong wind and fell on a passing milk van, killing the driver, on inspection a hole was found in the tree 4in x 8in and 12in to 15in deep it was held that the tree had been inspected the hole would have been seen and it would have indicated the probable existence of decay. Apparently, the tree was not inspected and no action had been taken to deal with the matter. The plaintiff was awarded substantial damages.

## **STATUTE LAW**

### **SECTION 154**

Where it appears to any competent authority for any highway or for any other road or footpath to which the public has access that any tree, shrub or hedge is dead, diseased, damaged or insecurely rooted and that by reason of its condition it, or part of it, is likely to cause danger by falling on the Highway, road, or footpath, the authority may by notice require the owner to cut or fell the tree within 14 days

### **LOCAL GOVERNMENT (MISCELLANEOUS PROVISIONS) ACT 1976**

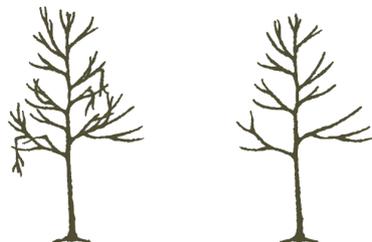
Where a council considers that a tree on private land is in imminent danger of causing damage it may take steps to make the tree safe at the expense of the owner or occupier.

### **OCCUPIERS LIABILITY ACT 1967**

A landowner has a duty to visitors to take such care as is reasonable to see that the visitor is reasonably safe in using the premises for the purpose for which they were invited or permitted to be there.

## APPENDIX 3: PRUNING PRACTICE

### a) Formative Pruning

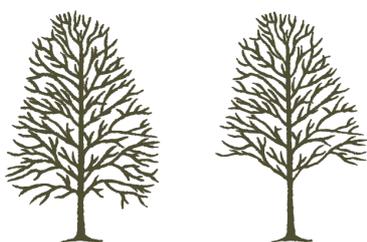


*Before*

*After*

Involves the removal of weak and damaged stems to ensure strong branch structure and defined stem (is appropriate).

### b) Crown Lifting

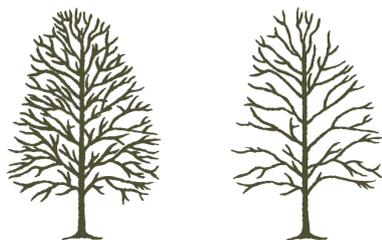


*Before*

*After*

Involves the removal of lower branches to a given height above ground level.

### c) Crown Thinning



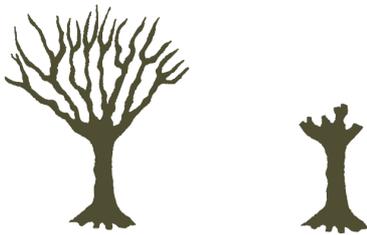
Involves the removal of a proportion of secondary and small live tissue to allow a balanced branch structure

*Before*

*After*

**d) Pollarding**

Traditional form of tree management removal of entire tree crown to leave main stem and short lengths of branches – can be adapted.

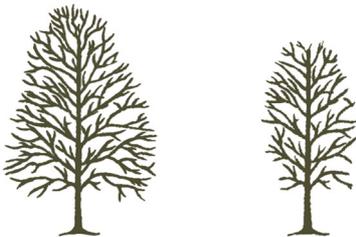


*Before*

*After*

**e) Crown Reducing and/or Reshaping**

Involves the reduction in height or spread of the tree's canopy whilst preserving the natural shape of the tree (see pollarding).

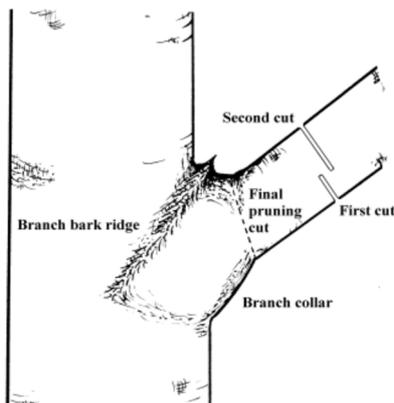


*Before*

*After*

**f) Natural Target Pruning**

To ensure most optimum healing and repair. Cuts made to live tissue, matching collar and branch bark ridge. Do not leave stubs. Phase the process on large branches (see diagram).





## APPENDIX 4: PESTS AND DISEASES

### Diseases and Disorders - Definitions

#### **Parasite**

An organism that attacks living trees or parts of trees

#### **Saprophyte**

An organism that attacks dead or decaying parts of trees

#### **Fruiting bodies**

The fleshy, reproductive organ that is produced outside of the tree, often referred to as the mushroom.

#### **Heartwood**

Wood altered as a result of the natural ageing process. It is found at the centre of the tree, is nonconductive of water and act as an internal support system for the tree.

#### **Sapwood**

Soft outer layers of wood within the tree containing living cells, recently formed outside of the heartwood. This transports the water and essential elements from the roots to the rest of the tree.

#### **Cambium**

Thin layer of tissue under the bark from which all tree cells are produced.

#### **Crown**

The branch structure and foliage system above the main clear stem of the tree.

#### **Windthrow**

When a tree fails from the point of the roots or root collar from the force of wind. This is usually associated with either poor soils, shallow roots or extensive root rot.

#### **Pathogen**

An organism causing death or decay to the tree.

#### **White Rot Fungi**

Cause the wood to turn light in colour by the process of degradation, and reduces the strength of the wood. The process causes the wood to lose rigidity and may eventually lead to the failure of the area affected.

#### **Brown rot**

Causes the wood to turn darker in colour by the process of degradation and reduces the strength of the wood. The process causes the wood to turn brittle and therefore predisposes it to failure.

## APPENDIX 6: REFERENCES

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## APPENDIX 6: SITE PLANS