EALING BROADWAY INTERCHANGE
HAVEN GREEN

TREE MANAGEMENT PLAN AND LANDSCAPE ENHANCEMENTS
MARCH 2012

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REPORT OVERVIEW

This report has been commissioned by the London Borough of Ealing and undertaken by WH Landscape Consultancy Ltd. The purpose of the report is three-fold:

- To address issues relating to tree protection and safety in respect of the Ealing Broadway Interchange proposals which include: the cycle hub and taxi rank redevelopment; bus stop redevelopment proposals; pedestrian and cycleway improvements, general road layout improvements at Haven Green and on adjacent streets.

- To address the issues of ground compaction in respect of the trees on, and bordering, the proposed development areas and the reseeding of grassed areas under the tree canopies on Haven Green.

- To propose landscape enhancements across Haven Green.

The report is in two parts. Part 1 comprises a tree management plan. It gives an overview of the designation and historic importance of the area, plus relevant planning policies relating to the natural environment. Part 2 details recommended landscape enhancements on Haven Green which could be undertaken in conjunction with the redevelopment. In addition, it also includes significant proposals outside the redevelopment areas.

The historic and policy information is common to both Parts 1 and 2, as is the soil decompaction recommended under the canopies of trees both within the redevelopment areas and in affected areas across Haven Green.
PART 1: TREE MANAGEMENT PLAN FOR REDEVELOPMENT

1. INTRODUCTION

1.1 The redevelopment proposals cover the existing tank ranks, bus stops and cycle parking, and surrounding streets and footways. It includes extensive removal of hard surfaces and resurfacing within the Root Protection Areas (RPA) of trees along the boundary of Haven Green and within the redevelopment areas. This management plan also includes the recommendations of the existing management plan for the provision of covered cycle shelters within the existing cycle parking on the pedestrian islands, and the refurbishment of the taxi drivers shed, which already have planning consent. It is proposed that all works will be carried out in a sustainable manner, using minimal excavation, porous surfaces, and pile foundations, where possible. The proposals also provide the opportunity for enhancements across Haven Green in the form of decompaction of the soils, reseeding, bulb planting, and the planting of a new generation of specimen trees (see Part 2).

2. DESIGNATIONS

2.1 The site falls within the administrative control of The London Borough of Ealing and is also owned and managed by the Council. It is within the Haven Green Conservation Area, and the trees across Haven Green, are protected by Area Tree Preservation Order (TPO) No. 736. The requirements of these two designations will be fully considered in the management and enhancement proposals. As of 6th April 2012 the legislation covering all Tree Preservation Orders is likely to be streamlined with all model orders brought under one simplified set of Regulations. There are a number of changes that may be relevant to this site. The omitting of dying trees from exempt works and the requirement that a written notification for exempt works will be required on all TPO trees will be particularly pertinent.

2.2 The Haven Green Conservation Area Character Appraisal was adopted in March 2008 and replaced the previous (1999) version. National guidance on the designation and appraisal of conservation areas is contained in the National Planning Policy Framework (March 2012).

2.3 In 2004, Ealing BC adopted ‘Ealing’s Adopted 2004 Plan for the Environment’, which is officially known as the ‘Unitary Development Plan’. The following policies (saved beyond 2007 in the Department of Communities and Local Government Direction) are relevant to the preservation and/or enhancement of the character and appearance of the Conservation Area and for the protection and enhancement of trees and landscape on and adjacent to the development site:
4.5 LANDSCAPING, TREE PROTECTION AND PLANTING

1. The Council will require that a well-designed and integrated landscaping scheme, with appropriate longer term maintenance and management will accompany any application. Landscaping schemes should ensure the identification and protection of existing vegetation of value, as well as the planting of suitable new trees and shrubs in appropriate locations.

2. The Council will continue to make Tree Preservation Orders, particularly where trees are likely to be affected by development, and/or where the trees are particularly visible, or are:
   (i) Large or healthy specimens;
   (ii) Part of a group which contributes to the character of the area.

3. The Council will seek to enhance small open sites for landscaped sitting areas, children’s play areas and tree planting as appropriate; in shopping and district centres, Major Employment Locations, at Employment Sites and in residential areas.

4.8 CONSERVATION AREAS

1. The Council will preserve or enhance the character and appearance of Conservation Areas and their settings.

2. New development, built or otherwise within or adjacent to the Conservation Area, will be permitted provided that it is well related to the existing character of the area in terms of its historic and architectural quality, and green setting. The Council also requires that any development proposal adhere to the Council’s specific Conservation Area guidelines.

3. The Council will refuse planning permission and Conservation Area consent for redevelopment of existing buildings, unless the proposed replacement development will preserve or enhance the character of the Conservation Area. The Council will also, where appropriate, make Article 4 Directions, restricting development rights granted by the General Permitted Development Order.

4. It is the Council’s intention to create new and extended Conservation Areas in the Borough, in areas which merit this status, having regard to the individual merits of buildings, spaces and other features, and the quality and character of the area as a whole.
3. HISTORIC DEVELOPMENT OF HAVEN GREEN

(Extracted from the Haven Green Conservation Area Character Appraisal)

3.1 Haven Green is part of the historic parish of Ealing 10 km west of Hyde Park Corner. It has existed as common land since medieval times. However, edification only started during Victorian times. Cary’s Survey of Middlesex (1786) shows a cluster of houses around a triangular shaped green at Ealing Haven, quite distinct from the larger settlement at Ealing Green. Haven Green was purchased as public open space by the Ealing Local Board, at the same time as other common land at Ealing Common and Ealing Green.

3.2 Ealing was originally bounded by the Old Parish of Acton to the east the Parish of Perivale and Greenford to the north. The southern boundary of the old parish followed the Thames eastward. From a point slightly east of Kew Bridge, it turned inland to Chiswick High Road, which it followed eastward before turning north and then east to Bollo Bridge Lane. The eastern boundary, with Acton, ran along Bollo Bridge Lane and east of Ealing Common and Hanger Lane. Thence it turned westward, almost to Hanger Lane, and followed it to the river Brent, which formed the northern boundary with Harrow, Perivale, and Greenford. The western boundary, with Hanwell, ran southward to the west of the modern Argyle Road and Northfield Avenue to meet Boston Manor Road near Boston House. Ealing is situated in the former historic County of Middlesex; Haven Green is in the central part of today’s London Borough of Ealing.

3.3 The Great Western Railway opened Ealing station in 1838, but there was little new development until the 1870s when commuter services were introduced, followed in 1879 by the advent of the Metropolitan Railway with its own station at Haven Green. The two stations were combined as Ealing Broadway Station in 1962. Eaton Rise was formed in 1864 on a single large plot and was developed sporadically over the next 30 years. The tall four storey houses on the west side of the Green and on the north side of Castlebar Road date from 1870-80, but the creation of central Ealing as the ‘Queen of the Suburbs’ really took off with the development of the Wood Estate from the 1880s onwards. The typical Ealing two storey double fronted houses covered the rising ground to the north and are predominant in the adjoining Mount Park and Montpelier Park CAs. Gordon Road, to the west of Haven Green, was developed towards the end of this period.

3.4 Haven Green is a large open space with mature Horse Chestnut, London Plane and Lime trees. Since its creation, Haven Green was traversed diagonally by a road linking the south-east to the north-west corners, which allows traffic circulation. Haven Green is not only the geographical centre of the Conservation Area, but also the bonding element of the residential areas. On the south side, the Green is bounded by the rail tracks. The eastern side of the Green is enclosed by a tight parade of shops and the old railway station.
3.5 The land-form is strongly defined by the presence of Haven Green and by the residential roads branching from it: Haven Lane and Mountfield Road on the east side, and Castlebar and Gordon Road on the west side.

3.6 The green spaces of Haven Green in the core of the Conservation Area, together with Ealing Green to the south west, and Ealing Common to the east, provide the area with informal recreational spaces for residents and visitors. Haven Green, Ealing Green and Ealing Common are all listed as Ealing Borough’s Public Open Spaces; this status recognises the value of the open spaces also for cultural and social activities.

4. NATURE CONSERVATION ISSUES

4.1 Haven Common does not contain any non-statutory or statutory nature conservation sites. However, the potential exists for bat and nesting bird habitats in the trees on and surrounding the development site. In particular, holes in the trees resulting from old pruning wounds are most likely to provide a suitable resting place for bats. Under the terms of the Wildlife and Countryside Act 1981 (as amended), the Countryside Rights of Way Act 2000, and (Natural Habitats, &c.) Regulations 1994, (as amended) it is an offence to disturb any protected species, including their habitat, or resting place. A bat survey will be required prior to substantial tree works being undertaken, unless required for urgent safety reasons.

4.2 Enhancement proposals should include native species which provide a good wildlife habitat, particularly for insects upon which many bird species and bats feed.

4.3 Ealing Borough Council encourages the preservation and enhancement of biodiversity and nature conservation in the following UDP policies:

**3.8 BIODIVERSITY AND NATURE CONSERVATION**

1. The Council will protect landscape features, both in the built-up area and on open land, which are affected by development; and will promote conservation and enhancement of important features of the natural environment such as ancient habitats, river flood plains, woodland, canals and other locally important habitats.

2. No development will normally be permitted within the following areas, except for facilities for nature conservation:
   1) Sites of Special Scientific Interest (SSSI)
   2) Local Nature Reserves (LNR)
3) Sites of Metropolitan Importance for Nature Conservation (SMI)
4) Sites of Interest for Nature Conservation (SINCs)

3. Within Nature Conservation Management Areas, the Council will seek to protect and promote nature conservation in conjunction with existing open space uses through the development of integrated management plans.

3.9 WILDLIFE PROTECTION
Development and other land use changes will not be permitted which may have an adverse effect on Protected or Priority Species. Where development is permitted which may affect these species, conditions may be imposed or an agreement made to:
(i) Minimise disturbance;
(ii) Provide alternative habitat capable of sustaining current populations; and
(iii) Facilitate the survival of individual members or groups of the species.

5. TREE MANAGEMENT PROPOSALS
5.1 As part of the proposed redevelopment and wider enhancement proposals, it is recommended that the following tree works be undertaken prior to any development works commencing on the site. This section of the report should be read in conjunction with the Tree Survey (WH Landscape Consultancy Ltd – March 2012), and with reference to Figure 1 in this report. All work shall be carried out in accordance with BS 3998 ‘Recommendations for Tree Work’. The tree surgeon should ideally be chosen from Ealing Borough’s recommended list or from the Arboricultural Association’s Approved Contractor list. The work shall be undertaken at the appropriate time and with the consent of Ealing Borough Council and the site agent. If necessary, expert advice should be sought on protected species issues (see Section 4 above) prior to work commencing. This will be particularly relevant on Horse Chestnut T82 which has a number of partly occluded pruning wounds with scratches around the holes. Trees T8, T15, T19, T25, T33, T37 and T38 also contain cavities and have the potential to be sites for protected species.

5.2 RISK EVALUATION, INSPECTION FREQUENCY & TREE SURGERY RECOMMENDATIONS
5.2.1 Haven Green has full public access and a very high rate of usage. Therefore, a risk rating has been used which has been adapted from LANTRA Awards 2006 Workshop ‘Professional Tree Inspection’
recommendations. This highlights the urgency of those works identified in the tree survey. An inspection frequency has also been categorised to assist in future management for the trees on site.

5.2.2 WORK URGENCY

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<tbody>
<tr>
<td>1.</td>
<td>Urgent</td>
<td>Works required immediately to make tree safe</td>
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<tr>
<td>2.</td>
<td>Very High</td>
<td>Works required within 3 months from date of report</td>
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<tr>
<td>3.</td>
<td>High</td>
<td>Works required within 6 months from date of report</td>
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<tr>
<td>4.</td>
<td>Moderate</td>
<td>Works required within 12 months from date of report</td>
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<tr>
<td>5.</td>
<td>Low</td>
<td>Works required within 3 years</td>
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<tr>
<td>6.</td>
<td>None</td>
<td>No works required, no target exists or excluded tree</td>
</tr>
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5.2.3 INSPECTION FREQUENCY

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<thead>
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<tbody>
<tr>
<td>1.</td>
<td>Urgent</td>
<td>Carry out a detailed inspection of the aerial parts and/or with the use of decay detection equipment as soon as possible</td>
</tr>
<tr>
<td>2.</td>
<td>Very High</td>
<td>6 monthly inspection</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>12 monthly inspection</td>
</tr>
<tr>
<td>4.</td>
<td>Moderate</td>
<td>18 monthly inspection</td>
</tr>
<tr>
<td>5.</td>
<td>Low</td>
<td>3 year inspection</td>
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<tr>
<td>6.</td>
<td>Very Low</td>
<td>5 year inspection</td>
</tr>
<tr>
<td>7.</td>
<td>None</td>
<td>No target for inspection or excluded from inspection</td>
</tr>
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5.2.4 Full risk assessment and tree surgery recommendations are detailed in Appendix 1 to this report. The following proposals are of particular significance:

I. It is recommended that aerial inspections be undertaken on trees T8, T10, T15, T19, T25, T27, T29, T33, T37, T38 and T82 to assess the extent of potential cavities, exposed tissue, and branch unions as detailed within the Tree Survey dated March 2012.

II. The remains of unidentified fungal fruiting bodies were found on trees T6, T15, T29 and T49. As wood decay fungi are most prevalent in the autumn months, it is recommended that these trees be inspected again in September 2012 by a suitably qualified arborist and their recommendations followed. If any other trees have been identified as being potential fungal hosts in previous surveys, these trees should also be inspected at this time.
III. Horse Chestnut trees T71 & T78 were potentially dangerous and, if not already removed, should be felled on the grounds of safety as soon as possible. The remaining red flowering Horse Chestnut trees along the northern boundary were showing typical signs of Bleeding Canker Pseudomonas p. ascuelli and are of poor quality with low vigour. Their removal and replacement is considered to be prudent management. The trees are identified as T72, T73, T74, T75, T76, T77 and T79.

IV. Horse Chestnut trees T1, T25, T28, T82 and T85 have heavily weighted spreading limbs. Consideration should also be given to the reduction of these limbs back to appropriate pruning positions to reduce the weight and stresses on the respective branch unions. Each tree should be assessed individually with the tips reduced back to appropriate pruning positions generally in line with the remaining portions of the crown, but this may be greater if deemed appropriate. All pruning wounds should be kept as small as possible due to the trees’ age, vitality and weak compartmentalisation of wounds and decay. The low vigour in many of the Horse Chestnut trees may also be due to ground compaction within the rooting zones.

V. At the time of inspection, a number of trees had low limbs over footpaths/roads and or close to street lights/street furniture. Crown lifting to the statutory heights of 2.5 meters over a pedestrian footway and 5.2 metres over a carriageway would be appropriate and in compliance with the Highways Act 1980. Further crown lifting should be undertaken to other trees on Haven Green to aid pedestrian and mower access where necessary.

VI. Trees T22, T23, T24, T28, T85 and T88 contain dead hanging branches and or moderate dead wood which should be removed as soon as possible.

VII. The mature London Planes are of significant stature. The majority have large spreading branches, with their inner crowns appearing to have been heavily crown thinned in the past such that much of the smaller branch framework is within the higher portions of the trees and towards the branches extremities. Consideration should be given to the development of a more natural inner crown structure over the coming years with tip reduction being undertaken on the elongated limbs to reduce the respective stresses on branch unions. Trees T3, T4, T6, T8 and T10 have been pruned back from over the adjacent car park to the south of Haven Green. Further reduction work is needed as part of the regular management to reduce encroachment and reduce the liability from branch drop.
VIII. The proposed redevelopment works are likely to be extensive around the London Plane T49 and this tree will need to be heavily pollarded to compensate for possible root disturbance and pruning.

IX. The pollarded Limes and London Plane T89 to T96 along Spring Bridge Road should be maintained as pollards, as per the existing works schedule.

X. Trees T99, T100 T101 and T102 are street trees along the B455 and have been heavily reduced in the past. Further reduction, crown thinning and shaping to clear the adjacent buildings and the footway, and reduce falling debris is appropriate and necessary management if these trees are to be retained.

XI. Newly planted trees T65 to T70 across Haven Green have suffered mechanical strimmer damage and are poor specimens, with a limited useful life expectancy. Their removal is recommended.

5.3 TREE PROTECTION

5.3.1 A significant part of the redevelopment site falls within the Root Protection Areas (RPA) of the surveyed trees, therefore the prevention of damage to the root systems is of paramount importance. The trees are already under a degree of stress as a result of: a) hard surfaces covering large parts of the RPAs; b) service runs cutting through the RPAs; c) compacted soils surrounding the trees and causing damage and anaerobic conditions within parts of the RPAs.

5.3.2 The following shall apply within the fenced RPAs:

- No mechanical excavation.
- No excavation by other means without arboricultural supervision.
- No hand digging without an approved written method statement.
- No lowering of levels for any purpose except for the hand removal of grass sward.
- No storage of plant or materials.
- No storage or handling of chemicals, including cement, within or adjacent to the fenced RPAs.
- No vehicular access.
- No fire lighting within five metres of tree foliage.

5.3.3 All areas of open ground at Haven Green and surrounding the trees on site should be fenced prior to any work commencing on the site, and retained throughout the construction process (see Tree Survey
March 2012: Figure 2 – Tree Protection Plan). Construction of protective fencing is to follow the procedures laid down in *BS 5837 (2005) ‘Trees in Relation to Construction’ Chapter 9 (Diagram 1 on Page 11). The use of braced weld mesh fencing is recommended. Outside the RPAs of the trees affected by the development proposals it is recommended that high visibility mesh, 1m in height, is used in locations where there is a low risk of intrusion into the root protection areas. Fix using steel fencing pins, driven 0.3m into the ground, at approximately every 3m.

5.3.4 Due to the close proximity of some of the fencing to the trees, the tight angles to be fenced, and the long duration that the fence is to be in place if the Haven Green decompaction and grass restoration work goes ahead (see Part 2), it may be more suitable in places to use chestnut paling fence held in place with wooden stakes. This is a visually more acceptable alternative. Chestnut paling was originally used for most tree protection fencing but due to limited availability is not regularly used today.

*superseded by BS 5837:2012 ‘Trees in relation to design, demolition and construction’ in April 2012*
5.3.5 Hard surfaces beneath the trees should be removed carefully and, as far as possible, by hand. However, the use of low axle load machinery will be necessary and can be used by working across the site from machinery parked on existing hard surfaces. If low load machinery and pedestrian access is required across stripped surfaces, a temporary cellular confinement system should be laid with track boards over the surface. Root systems beneath the surfaces will be limited, but there is evidence that structural roots are just beneath the surface. New surfaces should be of porous construction and can be constructed on a cellular confinement system base (see Diagram 2). Throughout the site, it is essential that soil levels are maintained approximately as they are at present. Reduction of soil levels will expose tree roots and the building up of soil will create anaerobic conditions and result in root dieback.

5.3.6 Services and drain runs should be kept outside the RPAs of the retained trees unless agreed in advance of construction.

5.3.7 Care is to be taken during site operations to ensure that wide or tall machinery can operate without coming into contact with retained trees. Contact with trees can result in serious damage to them. Adequate clearance must be maintained at all times. In some circumstances, access facilitation pruning maybe necessary and should always be undertaken by a qualified arborist or tree surgeon.

5.4 THE CONSTRUCTION OF NEW SURFACES AND BUILDINGS

5.4.1 To ensure that tree roots under the proposed hard surfaces are not adversely affected by the construction the use of no-dig construction techniques is recommended. The diagram below illustrates a typical no-dig construction using a cellular confinement system.

**DIAGRAM 2 – TYPICAL NO-DIG CONSTRUCTION SECTION**

- Geotextile membrane
- Wearing course
- Sand bedding
- Treated timber edging (optional)
- Cellular confinement system approx. 200mm deep
- Existing ground
- W40/20mm clean angular stone
5.4.2 The recommended methodology for no-dig construction is as follows:

- Remove hard surfaces using the methodology described in 5.2.5. The sub base of existing surfaces should be left in situ (where possible) to avoid root disturbance and provide a base for the new surface.
- Place geotextile membrane over the surface and secure in tension with wooden pegs.
- Place cellular confinement system over the geotextile membrane, ensuring that it remains secure during the infill process.
- Install kerbs and/or timber edgings on top of existing sub base level. The robustness of the kerbing will depend upon the loading of the surface and can vary from timber edging boards on lightly loaded surfaces to railway sleepers, drilled kerbstones, etc., for heavily loaded surfaces.
- Fill the cellular confinement system ‘honeycombe’ with inert, no fines, angular granular material of 20 – 40 mm size, which must not be compacted.
- Install the porous wearing course to specification over a second layer of geotextile membrane, with sand bedding dependant on the surface to be used.
- The new installation will allow for continued oxygen diffusion and maintain the passage of water to the root systems.

5.4.3 The relocated bus shelters and cycle shelter buildings (which already have planning consent), will be located on the hard surfaces with pile foundations to secure them in place. The piles will be located to ensure that they do not sever any tree roots in excess of 25mm in diameter. If any roots are to be cut, the work should be supervised by the tree surgeon or arborist. The root should be cut cleanly and the wound surrounded with washed sharp sand. Concrete is toxic to trees and should not be used to secure the piles unless it is sheathed so that there is no percolation into the surrounding soil.

5.4.4 If it is necessary to provide a secure construction compound for the redevelopment, it must not intrude on the RPAs of the trees, be sufficiently close to the redevelopment sites and not unduly affect the circulation of vehicles and pedestrians in the area. At the completion of the work, the site can be restored and new tree planting undertaken. Likewise, if a compound is required for the Crossrail construction, it must be kept outside the RPAs of all trees on Haven Green. Due to the sensitivity of the site and surrounding area it is recommended that, if possible, all Crossrail construction plant, machinery and materials are kept away from Haven Green.

5.4.5 Soil decompaction will be advantageous around the trees within the island cycle hub area and the redevelopment areas along Haven Green. Decompaction techniques are discussed in Section 1 of Part 2 ‘Landscape Enhancements on Haven Green’.
6. FUTURE MAINTENANCE AND MANAGEMENT

6.1 All trees on and adjoining the site should be regularly inspected and any necessary action to ensure the safety of the trees undertaken without delay. At present the London Borough of Ealing has a policy to inspect and carry out necessary pruning works to trees every three years, on a ward by ward basis. It is recommended that the trees bordering the highway are inspected by a competent person on an annual basis. This should also apply to the retained Horse Chestnut trees across Haven Green, with particular attention being paid to the presence of bleeding canker on these trees. The aerial inspection of trees and the inspection of those trees showing fungal fruiting bodies may require a different inspection regime which can only be determined following the inspections. All trees should be inspected following extreme weather conditions.

REFERENCES

PART 2 LANDSCAPE ENHANCEMENTS ON HAVEN GREEN

1. DECOMPACTION OF SOIL AND SOIL IMPROVEMENT UNDER TREE CANOPIES

1.1 Compaction of the clay soil is one of the factors which is likely affecting the health and vitality of the trees within the redevelopment areas, and bordering them, on Haven Green. This is predominantly the result of a very high level of pedestrian traffic. It is recommended that measures are implemented to decompact the soil and restore the grass in the areas under the trees on Haven Green as shown in Figure 1 ‘Landscape Enhancements’. Tree grilles and porous bonded gravel surfaces should be used on tree pits within pedestrian areas and street trees, once the soil has been decompacted.

1.2 The following methodology is recommended for the decompaction of the soil and restoration of the grassed areas:

- Install chestnut pale fence around the areas to be restored on Haven Green and allow access only for decompaction work and consequent works to re-establish the grass sward.

- Decompact soils under the canopies of the trees, in the area shown in Figure 1. Decompaction is to be carried out using a compressed air injection into the soil to free its structure and recreate the aerobic conditions necessary for root growth. The addition of a hydroscopic mulch such as horticultural sand and calcified seaweed, or composted mulch and pea shingle, is recommended. This can be either injected into the soil or back filled. The injection of mycorrhizal fungi, to promote root growth, into the soil is also considered to be beneficial. It is recommended that the Terralift system is specifically used for decompaction of the soil and can be used for hydroscopic injections into the soil, and is more suitable on the large areas to be decompacted. Where soil has to be moved or broken up around roots for root pruning and the laying of surfaces around street trees an Airspade should be used, but this is not considered suitable for general decompaction. Neither system damages tree roots.

- To prevent further compaction after treatment in heavily used areas, a cellular confinement system should be laid over the decompacted surface and filled with a nutrient rich top soil/mulch. This is then seeded with a grass seed mix suitable for shady, heavy use conditions. The inclusion of red fescue in the seed mix is recommended for areas of heavy usage. The area should remain fenced until the sward is established.

- Along the southern side of Haven Green, the placement of a knee rail or low railings along the back edge of the footway is recommended to restrict public access onto the decompacted ground beneath the tree canopies.
2. LANDSCAPE ENHANCEMENT AND PLANTING PROPOSALS

2.1 The age structure of the trees on and adjacent to the site, as well as photographic evidence, indicates that the majority of the trees were planted at a similar time, between approximately 1850 and 1890. The trees are now mature, apart from a few middle aged and young replacements, particularly in the north east corner of Haven Green. Many of the replacement trees have not been well managed and strimmer damage is evident on nearly all the young trees planted within open grassed areas. The proposed redevelopment work of the site is the ideal time to consider the planting of replacement trees, and the removal of those which are in poor condition or are of low amenity. As detailed in Part 1 above the diseased and dangerous Horse Chestnut trees along the northern boundary should be removed and their stumps ground out. The young strimmer damaged trees along the north to south pedestrian route across Haven Green. A diseased cherry tree in the north east corner was originally planted as a commemorative tree, and would benefit from being replaced with a longer-lived cherry species. A few other minor trees, which are either inappropriate species or in poor condition, are recommended for removal.

2.2 Where tree removal is proposed, replacement trees are recommended. To fill in gaps in avenue planting and to create new landscape features. The trees will be planted as semi-matures (18 – 20cm girth) and extra heavy standards (14 – 16cm girth) to create an instant impact. The chosen species will be used to replicate the original Victorian planting, but will also use some native species to complement the remnant native trees from the period when Ealing was a village outside London. Additionally, it is proposed to introduce some new species to create additional interest and long term focal points.

2.3 TREE PLANTING PROPOSALS

• Along the northern boundary the diseased and dangerous Horse Chestnuts are to be replaced with 7 x London Plane (*Platanus x hispanica*) or Sweet Chestnut (*Castanea sativa*). These trees will be planted as semi-matures (18 – 20cm girth) and will be moved slightly further south than the existing trees to reduce the overhang over the footway and road and give suitable space for future growth. It is recommended that the replacement trees are planted prior to the removal of the red chestnuts, which are declining and will be removed when they reach the end of their safe lives. It is anticipated that they will all be removed within 10 years, by which time the replacements will be well established.
The young, strimmer damaged trees along the western side of the north – south pedestrian route will be removed and replaced with a row of 5 x Tulip Tree (*Liriodendron tulipifera*) or Field maple (*Acer campestre*). These trees will grow quickly and form an interesting new element to the tree cover on Haven Green. The trees will be planted as extra heavy standards (14 – 16cm girth).

Along the southern side of the Haven Green bus stops, the gaps in the avenue trees will be infilled with a mixture of 3 x London Plane (*Platanus x hispanica*) and a single Hornbeam (*Carpinus betulus*) planted as extra heavy standards (14 – 16cm girth). The use of Hornbeam instead of Lime is suggested to provide a tree of greater interest than the rather austere and uninteresting appearance of the Lime.

In the area at the northern end of the B455 bus stops, and including the new junction in the north east corner of the site, it is proposed to use a native theme for tree planting, with the use of 1 x Yew (*Taxus baccata*) planted at between 3.0 and 3.5 metres in height and used to complement the existing Yew trees in the area, and 7 x Field Maple (*Acer campestre and A. campestre ‘Streetwise’*) planted as extra heavy standards (14 – 16cm girth). The remaining trees will be either silver birch (*Betula pendula*) or small leaved lime (*Tilia cordata*), or a mixture of both, to retain the native species theme. The central road island will be planted with 5 x Fastigiate Hornbeam (*Carpinus betulus fastigiata*), extra heavy standards (14 – 16cm girth). *Note: Yew trees are poisonous but already form part of the tree stock of Haven Green and their retention and enhancement is considered to be beneficial to the area in landscape and visual terms.*

The planting in the lower south east quadrant was detailed in the ‘Tree Management Plan & Landscape Enhancements’ Report by WH Landscape Consultancy Ltd in October 2011. Details of the planting proposals in this area are shown in Figure 1 ‘Landscape Enhancements’, but have been slightly amended. Proposals comprise a single Small-leaved Lime (*Tilia cordata*) to replace the damaged Horse Chestnut at the western end of the taxi lane on Haven Green (Note: the Austrian Pine adjacent will not be removed as previously recommended in the October 2011 report); a Tulip Tree (*Liriodendron tulipifera*) towards the eastern side of the quadrant, between the two large London Plane trees; and a Sweet Chestnut (*Castanea Sativa*) to act as a focal point in the grassed area beyond the peripheral planting. All trees are to be planted as semi-matures. The choice of Sweet Chestnut here, and possibly to replace the red chestnut on the northern boundary, is to make use of a species planted throughout south east England for many centuries, probably originally having been introduced into the British Isles by the Romans. The tree is a common sight in London Parks.
2.4 Due to the size of the proposed replacement trees, the use of specialist contractors from a nursery specialising in supplying large trees will be necessary. Selection of trees for the site should be carried out at the nursery. Trees will require extensive ground preparation, ground anchoring, and irrigation facilities. Aftercare facilities are also available through the majority of nurseries providing large trees and would be beneficial in this case. As there is evidence of a significant amount of strimmer damage to newly planted trees on Haven Green, all new trees will be fitted with robust strimmer and mower guards.

2.5 As the proposed replacement trees are of considerable size at planting it is likely that they will immediately be protected under the Conservation Area designation at Haven Green. However, the Area TPO cannot be extended to cover the new trees. If the Council wishes to give additional protection to these trees, it will be necessary to make a new TPO to cover them.

2.6 AMENITY GRASS PLANTING AND MANAGEMENT

2.6.1 The reseeding of grassed areas will need to be carried out using a hard wearing seed mix suitable for partially shaded conditions and where drought resistance is required. A high proportion of fescue and bent grass is recommended. A suitable amenity seed mix is available from Emorsgate Seeds. Their ‘Shade Tolerant Turfgrass Mixture EG23’ is recommended for the site.

2.6.2 Ground Preparation
A workable seedbed with a medium tilth will need to be created. This may require two cultivations. The first will bury unwanted ground cover and bring less fertile material to the surface. The second will be a cultivation to create the tilth. It may be necessary to return to the sites even after seeding in order to remove any invasive species. These should either be manually removed or individually chemically treated. Cultivation work should be carried out when the soil moisture level is reasonably low, allowing the soil to crumble. Two or three days before the seed is to be sown, lightly rake in a granular fertiliser. Care must be taken to ensure that tree roots are not damaged. In heavily trafficked pedestrian areas, it may be necessary to plant over a cellular confinement system to reduce soil compaction (see description above)

2.6.3 Sowing
Grass seed should be sown from late summer to mid-autumn at a rate of 35.00gm/m². After sowing, lightly rake over the area and water.

2.6.4 Management Until Established
- Protect the newly sown seed from birds and prevent public access onto the soil.
- Keep grass watered in dry conditions.
• Weed the area by hand, removing any weeds before they flower.
• When the new grass is 5cm (2in) high, cut with a rotary mower to 2.5cm (1in). Carefully rake up the clippings. Do this for the next four cuts.
• Once established introduce a regular growing season mowing regime.
• Do not cut grass in areas containing bulbs until the leaves have died back.

2.7 NATURALISED BULB PLANTING

2.7.1 The following species will be used for naturalising: Wood Anemone (*Anemone nemorosa*), Snowdrop (*Galanthus nivalis*), native Bluebell (*Hyacinthoides non-scripta*), native Daffodil (*Narcissus pseudonarcissus*).

It is proposed that the first three species will be planted in random swathes under the trees to create a traditional spring-time woodland flora. The daffodils will be planted in the new grassed areas at the B455 junction at the north eastern end of the site.

2.7.2 Bulb Planting

• Bulbs for naturalising (see Figure 1 Landscape Enhancement Plan) should be scattered randomly over the selected areas. They should not be too close together as overcrowding will reduce flowering. They should be planted at approximately 20 bulbs per square metre in drifts.
• Dig planting holes with a trowel, or in grassed areas, use a bulb planter. The holes need to be between two and three times the depth of the bulb, as shallow planting tends to weaken the bulbs because they are more prone to drying out.
• Break up some of the soil from the plug of turf removed with the bulb planter and use this to backfill around the bulb once it is in the hole.
• Replace the turf on the top of the hole. Aim to make the top of the turf plug level with the surrounding surface.

3. FUTURE MAINTENANCE AND MANAGEMENT

3.1 MANAGEMENT OF GRASSED AREAS

Once established, the reseeded grass in the decompaction area, and if necessary in the area of the construction compound, should be included in the normal grounds maintenance/mowing regime. The temporary fencing should be removed from around these areas. There should be no further requirement for decompaction in the foreseeable future. General management guidelines for newly planted grass are detailed below:

• Protect the newly sown seed from birds and prevent public access onto the soil.
Keep grass watered in dry conditions.

Weed the area by hand, removing any weeds before they flower.

When the new grass is 5cm (2in) high, cut with a rotary mower to 2.5cm (1in). Carefully rake up the clippings. Do this for the next four cuts.

Once established introduce a regular growing season mowing regime.

Do not mow areas planted with bulbs until approximately six weeks after flowering.

### 3.2 GENERAL MAINTENANCE GUIDELINES FOR NEWLY PLANTED TREES

- The planting shall be checked at regular intervals and any damaged stakes or anchoring repaired or replaced. Plants shall be firmed up following planting and, if necessary, until established. Any plants which die, or become diseased or damaged, should be replaced.

- Until the plants are established they should be watered to ground capacity during dry periods.

- Weeding around trees should be carried out by hand or by the spot application of glyphosate, taking care not to spray the tree stems, until the plants are well established. Mulch should be applied annually, using 50mm of matured wood bark, for the first three years after planting to suppress weed growth and contain the moisture.

- Limited formative pruning will be necessary to ensure that healthy and balanced crowns develop. Guards and stakes should be removed once the plants are well established.
Amnesty grade applied with recommended surfacing

Delete footpath extension onto existing bus hard surface.

Remove existing hard surface. Expose tree roots with as little as possible and pour in cementing the tree pit.

Construct tree footpath onto existing bus hard surface.

Delete footpath extension onto paved area.

Route of tree protection fence.

Porous concrete/glass fibre/steel multilayer surfacing. Surfacing to be extended beyond tree limits. Grade level with edge.

Remove hard surface. Expose tree roots as little as possible and pour in cementing the tree pit.

Construct new footpath onto existing bus hard surface.

Delete footpath extension onto paved area.

Route of tree protection fence.

Porous concrete/glass fibre/steel multilayer surfacing. Surfacing to be extended beyond tree limits. Grade level with edge.

Amnesty grade applied with recommended surfacing.

Delete footpath extension onto existing bus hard surface.

Construct tree footpath onto existing bus hard surface.

Delete footpath extension onto paved area.

Route of tree protection fence.

Porous concrete/glass fibre/steel multilayer surfacing. Surfacing to be extended beyond tree limits. Grade level with edge.

Amnesty grade applied with recommended surfacing.

Delete footpath extension onto existing bus hard surface.

Construct tree footpath onto existing bus hard surface.

Delete footpath extension onto paved area.

Route of tree protection fence.

Porous concrete/glass fibre/steel multilayer surfacing. Surfacing to be extended beyond tree limits. Grade level with edge.

Amnesty grade applied with recommended surfacing.

Delete footpath extension onto existing bus hard surface.

Construct tree footpath onto existing bus hard surface.

Delete footpath extension onto paved area.

Route of tree protection fence.

Porous concrete/glass fibre/steel multilayer surfacing. Surfacing to be extended beyond tree limits. Grade level with edge.
Appendix 1 – Tree Inspection Recommendations and Risk Assessments

The following risk rating has been devised which highlights the urgency of those works identified in the March 2012 Tree Survey. The inspection frequency has also been categorised to assist in future management for the trees on site (see 5.2 of ‘Tree Management Plan and Landscape Enhancements’ report).

**Work Urgency**

1. Urgent: Works required immediately to make the tree safe
2. Very high: Works required within 3 Months from the date of the report
3. High: Works required within 6 months from the date of the report
4. Moderate: Works required within 12 months from date of report
5. Low: Works required within 3 years
6. None: No works required, no target exists or excluded trees.

**Inspection frequency**

1. Urgent: Carry out a detailed inspection of the aerial parts and/or with the use of decay detection equipment as soon as possible
2. Very high: 6 months inspection
3. High: 12 month inspection
4. Moderate: 18 month inspection
5. Low: 3 year inspection
6. Very low: 5 year inspection
7. None: No target or excluded trees

**Inspection recommendations for the short and long-term**

Work Urgency= WU       Inspection frequency = IF

**T1 Aesculus hippocastanum**

*Recommendation*: Tip back elongated limbs.

WU=High     FI=High

**T2 Tilia x europaea**

*Recommendation*: No action.

WU= None     FI= High

**T3 Platanus x hispanica**

*Recommendation*: Tip back elongated limbs and let inner crown develop to improve appearance. Tip back to south.

WU= Low     FI= Moderate
**T4 Platanus x hispanica**

**Recommendation:** Tip back of limbs over the car park to the south and elongated limbs to the north west and south east; allow inner crown to regenerate to some degree to improve appearance.

WU= Low  FI= Moderate

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**T5 Tilia x europaea**

**Recommendation:** No action.

WU= None  FI= Moderate

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**T6 Platanus x hispanica**

**Recommendation:** Inspect during autumn. Tip back elongated limbs and let inner crown to develop to improve appearance.

WU= High  FI= Moderate

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**T7 Tilia x europaea**

**Recommendation:** No action.

WU= None  FI= High

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**T8 Platanus x hispanica**

**Recommendation:** Aerial inspection of cavities.

WU= High  FI= Moderate (subject to aerial inspection)

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**T9 Tilia x europaea**

**Recommendation:** Tip back on southern side and crown lift to 2.5m over footpath.

WU= High  FI= Moderate

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**T10 Platanus x hispanica**

**Recommendation:** Aerial inspection of stem unions recommended.

WU= High  FI= Moderate (subject to aerial inspection)

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**T11 Tilia x europaea**

**Recommendation:** No action.

WU= None  FI= Moderate

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**T12 Quercus robur**

**Recommendation:** No action.

WU= Low  FI= Low
T13 *Acer pseudoplatanus*

*Recommendation:* Tip reduce branches away from path and to clear adjacent street light. Monitor pruning wounds in main stem over coming years.

WU= High    FI= High

T14 *Tilia x europaea*

*Recommendation:* Tip branches back from road and up to statutory heights. 2.5 over path and 5.2 over road.

WU= High    FI= High

T15 *Platanus x hispanica*

*Recommendation:* Cavity on large limb east side to be inspected by climber. Crown lift to statutory heights, remove split damaged limbs over road. Inspect fungal activity in autumn.

WU= Urgent    FI= Very high

T16 *Acer pseudoplatanus*

*Recommendation:* No action.

WU= None    FI= High

T17 *Alnus glutinosa*

*Recommendation:* No action.

WU= None    FI= Low

T18 *Alnus glutinosa*

*Recommendation:* No action.

WU= None    FI= Low

T19 *Tilia x europaea*

*Recommendation:* Remove dead wood. Aerial inspection of cavity.

WU= Urgent    FI= High (subject to inspection results).

T20 *Platanus x hispanica*

*Recommendation:* Tip back in areas of dieback and lift to statutory heights over road and to clear street lamp.

WU= Urgent    FI= High

T21 *Tilia x europaea*

*Recommendation:* Full inspection not possible. Crown lift to statutory heights and remove dead wood.

WU= Urgent    FI= Very high
**T22 Platanus x hispanica**
*Recommendation:* Remove dead wood and hangers.
WU= Urgent    FI= High

**T23 Acer pseudoplatanus**
*Recommendation:* Remove dead wood. Monitor.
WU= Urgent    FI= High

**T24 Platanus x hispanica**
*Recommendation:* Remove dead wood and hangers. Crown lift to statutory heights.
WU= Urgent    FI= High

**T25 Aesculus hippocastanum**
*Recommendation:* Balance crown, tip reduce elongated branches back to suitable growth points to lessen weight, aerial inspection of cavities by climber.
WU= High    FI= High (subject to inspection results).

**T26 Pinus nigra var nigra**
*Recommendation:* No action.
WU= None    FI= High

**T27 Aesculus hippocastanum**
*Recommendation:* Tidy stubs. Aerial inspection of stem unions.
WU= High    FI= High

**T28 Aesculus hippocastanum**
*Recommendation:* Remove dead wood, crown lift and shorten laterals back from bus stop. Monitor.
WU= Very high    FI= High

**T29 Aesculus hippocastanum**
*Recommendation:* Aerial inspection and further examination recommended in the Autumn.
WU= None    FI= Very high

**T30 Fraxinus excelsior**
*Recommendation:* Remove, but no immediate action necessary.
WU= Low    FI= Low

**T31 Fraxinus excelsior**
*Recommendation:* Formative prune to improve long-term shape.
WU= Low    FI= Low
**T32 Pinus nigra var. nigra**
*Recommendation:* No action.
WU= None  FI= High

**T33 Aesculus hippocastanum**
*Recommendation:* Aerial inspection of cavities.
WU= Very high  FI= High

**T34 Pinus nigra var. nigra**
*Recommendation:* No action.
WU= None  FI= Moderate

**T35 Aesculus hippocastanum**
*Recommendation:* Remove tree along with T36 and replace.
WU= High  FI= High

**T36 Pinus nigra var. nigra**
*Recommendation:* Could be removed along with T35 and replaced.
WU= High  FI=High

**T37 Aesculus hippocastanum**
*Recommendation:* Investigate the possibility of decay in the old pruning wounds.
WU= Very high  FI=subject to inspection

**T38 Aesculus hippocastanum**
*Recommendation:* Investigate the possibility of decay in the old pruning wounds. Reduce the limb overhanging the road to the south east.
WU= Very high  FI= Moderate

**T39 Tilia x europaea**
*Recommendation:* Deadwood upper crown. Improve ground conditions and de-compact soil.
WU= Urgent  FI=High

**T40, T41 & T42 Tilia x europaea**
*Recommendation:* De-compact soil within the RPA. Remove deadwood and thin lower crowns. Sever ivy and remove major dead wood.
WU= Urgent  FI= High
**T43 Platanus x hispanica**  
*Recommendation:* No action.  
WU= None   FI= High

**T44 Aesculus hippocastanum**  
*Recommendation:* De-compact soil. Reduce weight of crown overhanging road as necessary.  
WU= High     FI= Very high

**T45 Platanus x hispanica**  
*Recommendation:* Reduce weight of crown overhanging the bus stop. This tree has a low amenity value and can be removed to facilitate the redevelopment of the area.  
WU= High     FI= High if not removed.

**T46 Platanus x hispanica**  
*Recommendation:* No action.  
WU= None     FI= High

**G1 Robinia pseudoacacia**  
*Recommendation:* Remove and replant if cooling unit removed.  
WU= Moderate     FI= Moderate if not removed.

**T47 Taxus baccata**  
*Recommendation:* Tip back from road.  
WU= High     FI= Moderate

**T48 Taxus baccata**  
*Recommendation:* Tip back from road.  
WU= High     FI= Moderate

**T49 Platanus x hispanica**  
*Recommendation:* Pollard tree to compensate for possible root damage during forthcoming works.  
WU= High     FI= High

**T50, T51, T54, T55, T56, T57, T58, T60, T61, T62 Carpinus betulus**  
Young trees.  
*Recommendation:* Formative pruning and crown lift to allow access.  
WU= Moderate     FI= Low
T52 *Prunus spp*
Recommendation: Remove and replace.
WU= Low   FI= Low if not removed immediately.

T53, T59, T63 *Quercus robur*
Recommendation: Formative pruning and crown lift to allow access.
WU= Moderate   FI= Low

T64 *Quercus robur*
Recommendation: Crown lift to allow access beneath.
WU= Moderate   FI= Low

T65 *Carpinus betulus*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T66 *Betula utilis Jacquemontii*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T67 *Carpinus betulus*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T68 *Carpinus betulus*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T69 *Betula utilis var Jacquemontii*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T70 *Carpinus betulus*
Recommendation: Remove and replace.
WU= Moderate   FI= Low

T71 *Aesculus x carnea*
Recommendation: Dangerous tree. Remove as a matter of urgency and replace.
WU= Urgent   FI= None
T72 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very High   FI= Very high

T73 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T74 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T75 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T76 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T77 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T78 *Aesculus x carnea*
*Recommendation*: Dangerous tree. Remove as a matter of urgency and replace.
WU= Urgent   FI= None

T79 *Aesculus x carnea*
*Recommendation*: Remove and replace.
WU= Very high   FI= Very high

T80 *Aesculus hippocastanum*
*Recommendation*: Prune back from adjacent light.
WU= High   FI= High

T81 *Ilex variety*
*Recommendation*: Crown lift to allow access.
WU= Moderate   FI= Low
**T82 Aesculus hippocastanum**

*Recommendation:* Tip reduce elongated branch over road and scared limb to west. Remove split limb and shorten back adjacent limbs to balance. Remove any major and moderate sized dead wood. Aerial inspection of cavities required.

WU= Very high   FI= High (subject to inspection results).

**T83 Pinus nigra var. nigra**

*Recommendation:* No action.

WU= None   FI= Moderate

**T84 Aesculus hippocastanum**

*Recommendation:* Aerial inspection of limb unions.

WU= Very high   FI= High

**T85 Aesculus hippocastanum**

*Recommendation:* Tip reduce limbs over road, remove moderate dead wood. Aerial inspection of scarring above large bough/main stem. Remove hangers.

WU= Urgent   FI= High (subject to inspection results).

**T86 Pinus nigra var. nigra**

*Recommendation:* No action.

WU= None   FI= Moderate

**T87 Platanus x hispanica**

*Recommendation:* Tidy crown.

WU= Low   FI= Low

**T88 Pinus nigra var. nigra**

*Recommendation:* Remove moderate dead wood.

WU= Very high   FI= Moderate

**T89 Tilia x europaea**

*Recommendation:* Maintain as pollard.

WU= Low   FI= Low

**T90 Tilia x europaea**

*Recommendation:* Maintain as pollard.

WU= Low   FI= Low
T91 *Platanus x hispanica*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T92 *Tilia x europaea*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T93 *Tilia x europaea*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T94 *Tilia x europaea*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T95 *Tilia x europaea*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T96 *Tilia x europaea*
*Recommendation:* Maintain as pollard.
WU= Low   FI= Low

T97 *Liquidambar styraciflua*
*Recommendation:* Lower tarmac and inspect base for damage.
WU= Very high   FI= High

T98 *Sorbus spp.*
*Recommendation:* Remove
WU= Moderate   FI= High if not removed.

T99 *Malus spp.*
*Recommendation:* Reduce crown, thin and shape.
WU= High   FI= Moderate

T100 *Malus spp.*
*Recommendation:* Reduce crown, thin and shape.
WU= High   FI= Moderate
T101 Malus spp.
Recommendation: Reduce crown, thin and shape.
WU= High    FI= Moderate

T102 Malus spp.
Recommendation: Reduce crown, thin and shape.
WU= High    FI= Moderate