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ARBORICULTURAL REPORT:

**ARBORICULTURAL
IMPACT ASSESSMENT**

and

**ARBORICULTURAL METHOD
STATEMENT**

11 OCT 2017

In relation to a Planning Application

at:

Manor Court, High Street, Harmondsworth.

Compiled by:

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April 2016

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Contents

- 1.0 Instruction
- 2.0 Introduction
 - Qualifications and Experience
 - Scope of this report
 - Relevant Background Information
 - Documents and Information Provided
- 3.0 Report Limitations
- 4.0 Brief Description of the Application Site (including trees)
- 5.0 General Principles for Protection of Trees during Development

Arboricultural Impact Assessment

- 6.0 Arboricultural Impact Assessment
- 7.0 Recommendations

Arboricultural Method Statement

- 8.0 General
- 9.0 Phasing of the Works
- 10.0 Construction Site Access
- 11.0 Tree Protective Fencing
- 12.0 Ground Protection Measures
- 13.0 Site Management, Site Organisation and Storage of Materials and Plant
- 14.0 Tree Protection and Utilities
- 15.0 Landscape Proposals including the Erection of Boundary Treatments
- 16.0 Conclusion

- Appendix A – Arboricultural Survey
- Tree Protection Plan – TPP/MCHSH/010 A

1.0 Instruction

- 1.1 I have been instructed by my client – Heathrow 1 Ltd - to provide an appraisal of the likely impact to, and implications for, trees on, and adjacent to, Manor Court, High Street, Harmondsworth in relation to a Planning Application on the site. The planning application forming the basis of this report is for the change of use of the existing office buildings to 15 no. residential units with associated parking, refuse storage and landscaping.

2.0 Introduction

2.1 Qualifications and Experience

- 2.1.1 My name is David Clarke, I gained a Bachelor of Science Honours Degree in Landscape Management from Reading University in 1993 and I am a Chartered Landscape Architect and Chartered Member of the Chartered Landscape Institute (1998). I hold the Professional Diploma in Arboriculture (RFS) (2012) and I am a Professional Member of the Arboricultural Association. I have 25 year's experience of working in both the private and public sector in relation to arboricultural and landscape issues.

2.2 Scope of this Report

- 2.2.1 This Arboricultural Impact Assessment and Arboricultural Method Statement forms the Arboricultural Report for the Planning Application. They should be read in conjunction with Tree Protection Plan (TPP/MCHSH/010 A) and Appendix A. The Arboricultural Report is aimed at identifying and addressing those matters concerning trees in relation to the Planning Application. It will clarify these issues:

- The principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.
- The species, size, position and condition of those trees within the area of the proposed development where trees may potentially have some significance to the proposed development. The full survey schedule is set out in Appendix A.
- The impact of the proposed development upon these trees (and vice versa) including those trees to be removed due to the proposed development.

- Any measures that are required to protect retained trees during the proposed works.

2.2.2 The trees have been assessed (see Arboricultural Survey – Appendix A) as set out in BS 5837: 2012 'Trees in relation to design, demolition and construction.

Recommendations.' An Arboricultural Survey was undertaken by myself in January 2016 in preparation for this report.

2.2.3 Tree numbers within the text (T1-T11 and G1-G6) relate to numbers designated as part of the Arboricultural Survey unless otherwise stated. The trees are plotted on the Tree Protection Plan (TPP/MCHSH/010 A) which accompanies the planning application.

2.2.4 BS 5837: 2012 'Trees in relation to design, demolition and construction.

Recommendations' provides recommendations for the assessment of trees on development sites and suggests four categories into which trees should be placed for assessment purposes. These categories have been used as part of the assessment of trees within this report.

2.3 Relevant Background Information

2.3.1 It is understood that none of the trees on the site are protected by a Tree Preservation Order but that trees are offered some protection due to the sites location within a Conservation Area. The Conservation Area status offers some protection to trees as all works to trees over 75 mm in diameter at 1.5 m above ground level must be applied for in writing to the Local Planning Authority. It is recommended that information on protected trees be confirmed (in writing) with the Local Authority before proceeding with any tree works to trees within this report. This will include trees outside the site.

2.4 Documents and Information Provided

2.4.1 All plans within this report are base upon drawings supplied by Wakelin Associates Architects, Hunton Bridge, Hertfordshire.

2.4.2 This document has been prepared in accordance with guidance set out in British Standard BS 5837: 2012 'Trees in relation to design, demolition and construction. Recommendations'.

3.0 Report Limitations

- 3.1 The report is for the sole use of the client and its reproduction or use by anyone else is prohibited unless written consent is given by the author.
- 3.2 The report observations are to be considered as correct at the time of inspection only. Trees are a growing, living organism, and are readily affected by many environmental factors. As such their condition and circumstances can change in a very short period of time. Therefore this report should be construed as valid for an absolute maximum of 12 months from the date of survey provided all factors remain unchanged.
- 3.3 This is an arboricultural report and as such no reliance should be given to comments relating to buildings, engineering, soils or other unrelated matters. The inspection of trees was undertaken from ground level and they were not climbed. No samples of wood, roots, soils or fungus were taken for analysis. Observations of the trees were confined to what was visible from within the site and surrounding public places. A full hazard risk assessment of the trees was not undertaken.
- 3.4 The presence of TPOs, a Conservation Area, or other designations, may affect the use of the site and the management of trees on the site. These designations can be served on the application, or adjacent, sites at any time. The landowner, or his representatives, should therefore satisfy themselves as to the presence (or absence) of these designations prior to:
- Undertaking any works to trees on, or adjacent to, the site. Written permission from the Local Authority may be required prior to undertaking tree works.
 - Undertaking any of the works specified in this Arboricultural Report before planning permission is granted.

4.0 Brief Description of the Application Site (including trees)

- 4.1 The site is located on High Street, Harmondsworth. It is formed of several buildings some of which are listed. An early 15th Century Tithe Barn is located outside the application site boundary but forms part of the historical context of the site. Open countryside is to the west and residential properties run along part of the southern boundary. A church and cemetery are located to the eastern boundary. Trees are predominately situated to the site boundaries and consist of both native and non-native

trees. Trees to the northern site boundary sit on top of a retaining wall. Trees are in a range of conditions. The site is well screened by existing hedges and other vegetation.

- 4.2 The planning application forming the basis of this report is for the change of use of the existing office buildings to 15 no. residential units with associated parking, refuse storage and landscaping.

5.0 General principles for protection of trees during development

- 5.1 It is equally important to ensure the protection of trees both above and below ground. Guidance is provided in BS 5837: 2012 'Trees in relation to design, demolition and construction. Recommendations' as to the protection of trees, before, during and after development.
- 5.2 The Arboricultural Impact Assessment will set out the potential impact of the proposals on trees and vice-versa. There is a need to protect trees and provide an Arboricultural Method Statement where proposals will impinge, or impact on the Root Protection Areas (RPAs) of retained trees. Root Protection Areas (RPAs) are a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. These are set out as Construction Exclusion Zones and have been calculated as part of the Arboricultural Survey.
- 5.3 The RPA for each tree is initially plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area will be produced. These factors include the morphology and disposition of the roots, when known to be influenced by past or existing site conditions - such as the presence of roads and structures - and site topography. Modifications to the shape of the RPA within this report reflect a soundly based arboricultural assessment of likely root distribution. The RPA may change its shape but not its area whilst still providing adequate protection for the root system.
- 5.4 Proposals may impinge on RPAs but these should be minimal and construction techniques such as specialized foundation designs should be considered to reduce the impact of development. The proposals will relate specifically to the site conditions and each individual tree and its category within the BS 5837 grading system.



Photograph A – looking west from within the site towards Manor Court one the buildings within the site.



Photograph B – trees on the northern boundary sit on top of a retaining wall adjacent to a car parking area. The parking will be removed and formed into the landscaped area of the site.

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6.0 Arboricultural Impact Assessment (AIA)

6.1 As stated above British Standard recommendations (BS5837: 2012 'Trees in relation to design, demolition and construction. Recommendations.') provides a formula for calculating the Root Protection Area (RPA) recommended to protect existing trees that are to be retained. The shape of the root protection area and its exact location will depend upon arboricultural considerations but the area will normally be represented on a plan as a circle. The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure in which they live by soil compaction, changes in soil levels or prevention of gas exchange to living roots.

6.2 These RPAs are shown on Tree Protection Plan (TPP/MCHSH/010 A) which also forms part of the Arboricultural Method Statement. Where incursion within the RPA of a retained tree is necessary as part of the construction process then a methodology will be in place to prevent, or reduce to an insignificant level, damage to trees.

6.3 Below (and within Appendix A) I have discussed the significance of the trees, the constraints that they are likely to pose to the proposed development (and vice-versa) and any tree works required in order to facilitate the development.

6.4 Summary of Tree Impact Assessment

6.5 There are 11 no. individual trees and 6 no. groups of trees which form the basis for this report and which could potentially be affected by the development proposals.

6.6 Trees recommended for removal for Arboricultural Reasons

Of the trees within this report none are recommended to be removed for arboricultural reasons irrespective of any development of the site.

6.7 Schedule of trees recommended for removal for Arboricultural Reasons

<u>Tree No.</u>	<u>Species</u>	<u>BS Category</u>	<u>Reason for recommended removal</u>

None.

6.8 Trees removed due to the application

Of the trees within this report none will need to be removed to implement the development.

6.9 Schedule of trees removed due to the application

<u>Tree No.</u>	<u>Species (Common Name)</u>	<u>BS Category</u>	<u>Reason for removal</u>
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None

6.10 Trees potentially affected by the application

No buildings will need to be demolished as part of this site development and none will be constructed within the RPAs or canopy spreads of trees. However site access, the removal and installation of hard standing and construction activity will take place within the RPAs and/or canopy spreads of retained trees. Incursions will also take place to install or replace boundary treatments - including timber fencing – and to landscape the site.

6.11 These potential impacts are set out and evaluated below and measures to prevent, or reduce, the effects of the proposals on these trees are set out in the Arboricultural Method Statement. The impact on retained trees from this development will not be significant as long as the proposals set out in this report are followed.

6.12 Schedule of trees potentially affected by the application

<u>Tree No.</u>	<u>Species</u>	<u>BS Category</u>	<u>Reason for potential impact</u>
T1	Ash	C1/C3	• Removal of hard standing formed of car parking area within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site. • Refurbishment, replacement or erection of boundary fencing within RPAs and within canopy spread.
T2	Ash	C1/C3	• Removal of hard standing formed of car parking area within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site. • Refurbishment, replacement or erection of boundary fencing within RPAs and within canopy spread.

T3	Walnut	B1	• Refurbishment of existing hard standing formed of a footpath within 10% of RPA and within the canopy spread. • Installation of new hard standing (footpath) within 8% of RPA and within the canopy spread.
T5	Ash	B1	• Construction activity – pedestrian movements - within RPA and within the canopy spread.
T10	False Acacia	C1	• Site access within potential RPA and within the canopy spread. • Refurbishment of existing hard standing formed of site access within RPA and within canopy spread.
G1	3 no. Monterey Pine	B2	• Removal of hard standing formed of car parking area within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site. • Refurbishment, replacement or erection of boundary fencing within RPAs and within canopy spread.
G2	3 no. Ash and 1 no. Hawthorn	C2/C3	• Removal of hard standing formed of car parking area within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site. • Refurbishment, replacement or erection of boundary fencing within RPAs and within canopy spread.
G3	4 no. Cypress and 1 no. Hawthorn	C2	• Removal of hard standing formed of car parking area and access road within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site. • Refurbishment, replacement or erection of boundary fencing within RPAs and within canopy spread.
G4	1 no. Ash and 1 no Holly	B2/B3	• Removal of hard standing formed of access road within potential RPA and within the canopy spread. Area will subsequently form the landscaped (garden) areas of the site.

It is noted that operations to landscape the site will take place within the RPAs and canopy spreads of the majority of trees within this report.

6.13 Assessment of potential impacts on retained trees

6.14 Site Access

Access for construction vehicles and domestic vehicles (once development is complete) will be from the existing access point on High Street. This is within the potential RPA of 1 no. tree (False Acacia T10) on the line of the existing site access. The tree is also beyond a brick boundary wall. It is assessed that there will be no (significant) roots of this tree within the area of the existing access due to the presence and use of the existing hard standing and the foundations of the brick wall. This (tarmac) surface is relatively intact and with good integrity. It is therefore assessed that the existing (tarmac) surface is suitable to take the weight loadings associated with its vehicular use during the development. The use of this assess can therefore take place without damaging retained trees.

6.15 Demolition

No building(s) will need to be demolished within the RPAs or canopy spreads of retained trees as part of the proposed development.

6.16 Removal of Existing Hard Standing

The removal of hard standing (car park) will take place within the potential RPAs of trees to the northern and eastern boundaries (T1-T2 and G1-G4). These trees sit above the level of the car park on top of retaining walls at least 800 mm above the car park level. It is assessed that the change in levels will have contained the roots of these trees within the upper level and that there will be no roots within the area of the car park. This surface can therefore be removed without damaging the roots of these trees. However care must be taken during this operation to ensure that any machinery used in this process does not damage the crowns of trees. This is set out in further detail within 'Site Management, Site Buildings and Storage of Materials and Plant' below.

- 6.17 Hard standing forming the footpaths and site access within the site will be removed and refurbished as part of this development within the RPAs of Walnut (T3) and False Acacia (T10) respectively. Where these have no greater construction depth than the existing surface and sub-base then this will have a neutral impact on trees. Any changes to the construction depth of these surfaces will need to be assessed by an Arboriculturist before proceeding. Where relevant alternative methods of construction will be used.

6.18 Installation of Hard Standing Areas

New hard standing for a footpath will be installed within 8% of the RPA of Walnut (T3). This is to the edge of the RPA area. It is considered that only small roots (below 25 mm) will be present at this distance (over 3.0 m) from the tree (Biddle 'Tree Root Damage To Buildings') and no structural roots should therefore be damaged. It is assessed that this is a minor and insignificant incursion in relation to the age and condition of the tree and its long term retention. A standard footpath construction is therefore considered to be acceptable in this instance. However it is recommended that these works take place at the end of the Construction Phase with this tree being protected by Tree Protection Fencing until that point.

6.19 Construction within RPAs

The conversion of the existing buildings to residential use will take place outside the RPAs of trees. No specialised construction techniques are therefore proposed as part of the site development.

6.20 Construction Activity

Uncontrolled construction activity could lead to direct or indirect damage to trees - both above and below ground. Therefore Tree Protection Fencing is proposed within the Arboricultural Method Statement to restrict and control construction activity and protect retained trees during the works.

- 6.21 Activity associated with the implementation of the proposals may take place within the RPA and canopy spread of Ash (T5). This would involve pedestrian movements as part of the conversion of the existing building. Therefore Ground Protection Measures are proposed within the Arboricultural Method Statement to restrict and control construction activity and protect retained trees during the works. This will consist of the retention of the existing hard standing footpaths in this area.

6.22 Canopy Spreads and Tree Management

The trees are set at a significant distance from the retained buildings and will have the same relationship to these buildings once they are converted to dwellings. They are a significant height above proposed garden areas. No tree works are therefore proposed as part of the site development.

6.23 Shading

Trees are mainly located to the site boundaries at a significant distance from the buildings. The trees will have the same relationship to the dwellings as they do to the existing buildings. There will always be areas of the garden areas which are not shaded by trees during the day. Trees will therefore not have a negative impact on the site leading to pressure to prune or fell retained trees.

6.24 Levels

No level changes should occur within the RPAs of retained trees except any considered and assessed within this report.

6.25 Herbicides and Pesticides

The use of herbicides and pesticides is not proposed within the RPAs of retained trees as part of this application. Should this change then chemicals will be specified which will not have an impact on retained trees.

6.26 Utility Routes

The exact location of services is not known at this stage. However it is assumed that where possible existing service runs to the retained buildings will be used and any new services will also connect to existing service runs to the retained buildings. They can therefore be located outside the RPAs of retained trees – which are predominately located to the site boundaries. A plan showing the layout of services and an installation methodology will be a Planning Condition as part of any Planning Approval.

6.27 Site Management, Site Buildings and Storage of Materials and Plant

Poor placement of site buildings (including latrines), materials and plant can lead to direct damage to retained trees or indirect damage such as through the compaction of soils. The layout of the site has therefore been considered and planned at this early stage to reduce or prevent any potential and significant damage to retained trees. These measures are shown on the Tree Protection Plan and set out in the Arboricultural Method Statement. Additionally the use of Tree Protective Fencing is set out above and in the Arboricultural Method Statement. Works involving machinery may take place within the canopy spreads of retained trees. These include the removal of hard standing. Where this has the potential to damage the canopies of trees then these operations should be directed by a dedicated banksman who is adequately trained in relation to the protection of trees.

6.28 Boundary Treatments

New or replacement boundary railings or fencing will be introduced within the RPAs and canopy spreads of retained trees to define the site and garden boundaries. This is considered to be a minor and insignificant incursion in relation to the long term retention of trees. A methodology for the installation of these boundary treatments is set out in the Arboricultural Method Statement. This will set out how these boundary treatments will be installed without damaging retained trees.

6.29 End Use of the Proposal

The proposals will have a residential use at the end of the project.

7.0 Recommendations

- 7.1 Existing trees can be easily damaged directly through root severance and, inadvertently, through soil compaction which disrupts the soil structure causing asphyxiation of roots and subsequent root dysfunction. Spillage of toxic materials can also cause root death. Protection for trees selected for retention is essential to ensure they are not affected by the development.
- 7.2 All trees to be retained should therefore be protected as set out in the Arboricultural Method Statement. Where operations using machinery or plant has the potential to damage the canopies of trees then these operations should be directed by a dedicated banksman who is adequately trained in relation to the protection of trees.
- 7.3 Incursion within the Root Protection Areas (RPAs) of trees (see Tree Protection Plan TPP/MCHSH/010 A) will be required as part of the development proposals. Protective measures proposed in the Arboricultural Method Statement should be implemented to prevent, or limit, any significant damage to the roots of these trees. These include the use of Tree Protection Fencing and Ground Protection Measures.
- 7.4 The location and siting of all utilities should be outside of the RPAs of retained trees as enforced on site. If incursions within RPAs are unavoidable then specialised installation techniques will need to be agreed with an arboriculturist before proceeding.
- 7.5 An arboriculturist will be the main contact with the Local Authority Tree Officer and will notify them of the proposed schedule prior to work commencing on site.



Photograph C – looking west towards Pine (T8) from within the application site.

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8.0 General

- 8.1 This document sets out the methodology for proposed works that affect trees on, and adjacent to, the site. Compliance with this (and subsequent) method statement will be a requirement of all relevant contracts associated with the development proposals. Copies of this document will be available for inspection on site. The developer will inform the local planning authority if the arboricultural consultant is replaced. This method statement should be read in conjunction with Tree Protection Plan (TPP/MCHSH/010 A).

9.0 Phasing of the Works

- 9.1 The works are proposed to be undertaken in the following phases:
- Installation of Tree Protection Measures - Fencing – and confirmation of retention of Ground Protection – footpath near Ash (T5) - prior to commencement of the Construction Phase. Place temporary site structures - such as latrines - outside the Construction Exclusion Zones.
 - Commence Construction Phase.
 - Install new footpath and refurbish existing footpath within the RPA of Walnut (T3) at the end of the Construction Phase.
 - Completion of Construction Phase and removal of any temporary site structures.
 - Removal of Tree Protection Fencing.
 - Landscaping including erection of boundary fencing.
- 9.2 It is noted that some phases of the work may overlap. For instance some landscaping of the site may occur whilst Tree Protection Measures are still in place.

10.0 Construction Site Access

- 10.1 Access for construction site traffic will follow the Designated Access Route which is shown on Tree Protection Plan (TPP/MCHSH/010 A).

11.0 Tree Protective Fencing

- 11.1 Root Protection Areas (RPAs) are the minimum areas (in m²) which should be left undisturbed around each retained tree as Construction Exclusion Zones. These areas have been calculated as part of the Arboricultural Survey. The protective distances where possible will be enforced by the use of robust protective fencing as outlined in BS 5837: 2012 'Trees in relation to design, demolition and construction. Recommendations'. The fencing will be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree.
- 11.2 In this instance it is proposed to use 2.0 m high metal mesh panels. The panels will be joined together using a minimum of two anti-tamper couplers to prevent access except for maintenance operations. The distance between the fence couplers will be at least 1.0 m and they will be uniform throughout the fence. Examples would include Heras fencing (See Photograph D below). Where space does not allow for a full panel to be erected then panels may overlap each other to fill a gap. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins. Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray. Fencing will be maintained to ensure that it remains rigid and complete.
- 11.3 The exact composition of the soil is unknown. Clay soil, for instance, compacts very easily when wet, so it is essential that fenced areas remain undisturbed before and during demolition and construction to prevent root asphyxiation.



Photograph D - Tree Protective Fencing

11.4 Laminated site warning signs will be attached to the fencing. These signs will state:

'CONSTRUCTION EXCLUSION ZONE – NO ACCESS

No storage of materials or use of machinery should take place within this area. These fences should remain intact unless under instruction from the site foreman following consultation with an Arborist.'

11.5 Tree Protection fencing will be erected before any vehicles enter the site in connection with the Construction Phase. It will not be removed - except as required for grounds maintenance works - until site development is predominately complete. The section around Walnut (T3) will then be removed to install a length of footpath. The remaining sections of fencing will then be removed at the end of the Construction Phase.

12.0 Ground Protection Measures

12.1 Pedestrian movements may occur within the RPA of Ash (T5) during the Construction Phase. Ground Protection Measures are proposed to protect the underlying soil structure and prevent potential root damage during construction activity.

12.2 The protective fencing specified will first be erected as shown on Tree Protection Plan (TPP/MCHSH/010 A) prior to construction commencing. The following specifications will then be introduced

12.3 Pedestrian Access - Construction Phase

Pedestrian movements may take place around the building(s) to be converted during the Construction Phase. This will be within the RPAs of Ash (T5). The existing hard standing forming a footpath will be retained during the duration of the works to act as Ground Protection Measures.

12.4 The Ground Protection Measures will be confirmed to be in place prior to any vehicle or pedestrian entering the site in connection with the Construction Phase. These surfaces will only be removed once the main Construction Phase is complete and vehicle and pedestrian movements connected with the development have ceased.

13.0 Site Management, Site Organisation and Storage of Materials and Plant

13.1 During the proposed construction works attention will be paid to the protection and well being of retained trees. The site will be organised in such a manner so as to minimise the effects of the construction work on trees.

13.2 All materials and plant to be used during the construction phase will be carefully stored outside of the enforced tree protection areas (see Tree Protection Plan - TPP/MCHSH/010 A) or on Ground Protection Measures. All toxic substances such as oils, bitumen's and residues from concrete mixing will be retained by effective catchment areas. No toxic material will be discharged within 10 m of a tree stem. No fires will be lit within 10 m of a tree stem.

13.3 All access onto the site will be via the Designated Access Route. All contractors parking, temporary latrines and other temporary structures will be outside the Construction Exclusion Zone or on Ground Protection Measures. Where operations by machinery or plant has the potential to damage the canopies of trees then these operations will be directed by a dedicated banksman who is adequately trained in relation to the protection of trees.

14.0 Tree Protection and Utilities

- 14.1 The exact location of services is not known at this stage though it is assumed that existing services will be utilised where possible. Given the site layout in relation to trees it should be possible to install or refurbish services without impacting on trees. A methodology has therefore not been set out in this Arboricultural Method Statement but may be required as a Planning Condition as part of the Planning Approval.

15.0 Landscape Proposals Including the Erection of Boundary Treatments

- 15.1 All landscaping will avoid soil re-grading and unnecessary disturbance within the RPAs of retained trees. Any ground works, such as planting of replacement trees or spreading of top soil, within the RPAs of retained trees will be undertaken using hand held tools or suitable machinery (under supervision). Appropriate machinery would include vehicles with low pressure tyres.

15.2 Boundary Treatments

Fencing or railings may be erected through part of the RPAs of trees to form a secure boundary to the site and garden boundaries. In part fencing may replace existing fencing which is in a poor condition. Where possible existing post holes will be used.

- 15.3 Care will be taken when digging new holes and these will be undertaken by hand within these RPAs. Where roots larger than 25 mm diameter are encountered the post hole (where possible) will be moved to ensure the roots are not affected. Where it is not possible to move the post hole roots larger than 25 mm diameter will only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability. Roots smaller than 25 mm diameter may be pruned back, preferably to a side branch, using a proprietary cutting tool such as bypass secateur or handsaws.
- 15.4 Roots which are exposed, but are to be retained, will be wrapped in dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling, any Hessian wrapping will be removed and retained roots should be surrounded with sharp sand or other loose granular fill, before soil or other material is placed over the roots. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

16.0 Conclusion

- 16.1 The planning application forming the basis of this report is for the change of use of the existing office buildings to 15 no. residential units with associated parking, refuse storage and landscaping. The implementation of the proposed site layout will not require the removal of trees. The layout has been designed to have the least possible impact on trees whilst allowing the development to proceed.
- 16.2 The majority of the trees within this report are located to the site boundaries with some in areas retained by walls above any areas of development. There will be incursions within the RPAs and canopy spreads of retained trees to implement the development – the removal of hard standing, the installation of a footpath, construction activity and the replacement or erection of boundary treatments. Specifications for the implementation of specific elements within the site development are set out within the Arboricultural Method Statement. If implemented the impacts on retained trees from these proposals are assessed as being minimal and insignificant.
- 16.3 Retained trees will be protected during the Construction Phase. This report sets out how trees are an important part of the development of the site and how protection and retention of trees will be achieved. The effect on trees from the proposals will be minimal given the proposed site layout and conditions and providing that the Arboricultural Method Statement is implemented.
- 16.4 The development is therefore acceptable in arboricultural terms and should receive planning consent.

Appendix A

Arboricultural Survey

Manor Court, High Street, Harmondsworth.

1.0 Introduction

- 1.1 I visited the site in January 2016 to inspect relevant trees on, and adjacent to, the site in relation to a Planning Application. Relevant trees are those within the area of the proposed development (both on and adjacent to the Site) which may potentially have some significance to the proposed development. The survey includes the species, size, position and condition of these trees. A full list and description of Survey Terms is given below. Where possible trees were assessed as individual specimens, however, where trees formed distinctive groups within the landscape these were assessed and graded as groups.
- 1.2 This survey has been prepared following guidance set out in BS 5837: 2012 'Trees in relation to design, demolition and construction. Recommendations'. It seeks to offer guidance in relation to planning application discussions or designs for the site. As suggested by BS5837: 2012 'Trees in relation to design, demolition and construction. Recommendations' all trees with a stem diameter of less than 75 mm at 1.5 m above ground level were excluded from the survey.

2.0 Description of Survey Terms

- 2.1 **Tree Reference Number** is the number allocated as part of this Arboricultural Survey. This may be different from other surveys undertaken on the site and the tree may, or may not, be tagged on site.
- 2.2 **Height** of the tree is measured in metres to the centre of the crown or the highest point of the tree. There is a tolerance of plus or minus 1.0 m.
- 2.3 **Crown Spread** is taken at compass points N, E, S and W from the centre of the tree stem. This is to the nearest 0.5 m. Where tree canopies spread off-site then estimations (est.) have been made. With regard to groups the average canopy spread is given. Where individuals within the group are significantly different from this these are shown on the plan and the maximum spread stated within the report.

- 2.4 **Stem Diameters** are taken at 1.5 m above ground level unless otherwise stated. Where measurements of trunk diameter are not possible then estimations (est.) have been made. This may be due to ivy on the trunk or where trees are not on the application site. The annotation ms refers to multi-stemmed trees.
- 2.5 **Root Protection Areas** (RPAs) are calculated from stem diameter measurements as set out in BS5837: 2012 'Trees in relation to design, demolition and construction. Recommendations'. RPAs are the areas (in m²) around each retained tree which contain sufficient rooting volume to ensure the survival of the tree. The area will normally be represented on a plan as a circle or polygon. If shown as a circle the **Radius of Root Protection Area Zone** is included.
- 2.6 **Age Class** - A young tree (Y) is within its first 1/3rd of life expectancy. A middle aged tree (MA) is within its second 1/3rd of life expectancy and a mature tree (M) is within its final third of life expectancy. An Over Mature tree (OM) is beyond its average life expectancy and a Veteran (V) is usually beyond the typical age range for the species but of biological, cultural or aesthetic value.
- 2.7 **Physiological and Structural Condition** - Trees in a Good Physiological or Structural Condition have no visible problems or significant defects. Those in a Fair Condition have remedial symptoms or defects or where these symptoms or defects are not remedial but will not affect the **Estimate Remaining Useful Contribution** and those in a Poor Condition have defects which are not remedial and removal of the tree should be considered.
- 2.8 **Comments** give a description of the tree including its general form, description of any physical defects, disease or decay and other appropriate details based on the health, vitality and overall structural integrity. It also includes the environment in which the tree is growing.
Recommendations for the management of the tree or group will be given where required.
- 2.9 A tree of good form has a shape that is typical of the species or has amenity in its own right. A tree with moderate form has been affected by its environment and is not typical of the species and has limited amenity value on its own right though it may have a collective amenity with adjacent trees. A tree with poor form has low quality and may also have structural defects which will affect its long term retention. **Canopy height above ground level** is given where this is applicable.
- 2.10 **Estimated Remaining Useful Contribution** is the estimated number of years that the tree will continue to make a safe and useful contribution to its surroundings, taking into account its current age, physiological and structural condition and its current location or environment. This assumes that there will be no changes within its immediate environment.
- 2.11 **Category Grading** - trees have been categorised in accordance with the cascade chart set out within BS5837: 2012 'Trees in relation to design, demolition and construction. Recommendations'.

- 2.12 The trees inspected as part of this report were inspected from the ground only and were not climbed. No samples of wood, roots, soils or fungus were taken for analysis. Observations of the trees were confined to what was visible from within the site and surrounding public places. A full hazard risk assessment of the trees was not undertaken.
- 2.13 Where access to trees is not possible and/or a certain identification is not possible then these trees are classified as 'unidentified'.



Photograph E – Looking north towards G3, G4 and Ash (T2)
all situated in an area retained by a brick retaining wall.

Tree Schedule

Tree Ref No.	Species Common Name (Latin Name)	Height (m)	Stem Diameter (mm) Root Protection Area (m²)	Radius of Root Protection Area zone (m)	Branch Spread (m)	Age Class	Physiological/ structural Condition	Comments	Estimated Remaining Useful Contribution (years)	Category Grading
T1	Common Ash (Fraxinus excelsior)	15	612 est (6 x 250 mm stem diameter) 169.5	7.3	N - 6.0 est E - 6.0 S - 6.0 W - 5.5	M	Good/Fair	Multi-stem tree of moderate form but relatively prominent in the area due to raised position. Area is raised approximately 650 mm above adjacent car park area and retained by a brick wall. Previously pruned. One half covered in ivy. Ivy recently partly severed to the tree. Barbed wire embedded to tree is a potential point of structural weakness and entry point for pathogens. First significant branch below 1.5 m above ground level. Canopy to ground level at lowest point to north but 3.5 m above car park area to south. • Remove barbed wire where this will not further damage the tree. Monitor condition of tree as part of any regular tree management programme. Include any degradation around area of embedded barbed wire.	10+	C1/C3
T2	Common Ash (Fraxinus excelsior)	15	610 (1 x 350 mm and 1 x 500 mm stem diameter) 168.4	7.3	N - 6.0 est E - 5.0 est S - 7.0 W - 5.5	M	Good/Fair	Multi-stem tree of moderate form but relatively prominent in the area due to raised position. Area is raised approximately 1300 mm above adjacent car park area and retained by a brick wall. Covered in ivy. First significant branch below 1.5 m above ground level. Canopy to ground level at lowest point to north but 3.5 m above car park area to south. • Monitor condition of tree as part of any regular tree management programme.	10+	C1/C3
T3	Walnut (Juglans spp)	11	410 76.1	4.9	N - 6.0 E - 5.5 S - 5.5 W - 5.5	MA	Fair/Good	Rope swing tied to branch to north. Bird feeder attached to the tree. Hanging branch within tree. Previously pruned. First significant branch at 1.8 m above ground level to north. Canopy to 1.4 m above ground level at lowest point to north. • Remove hanging branch within tree.	20+	B1

T4	Goat Willow (<i>Salix caprea</i>)	9	298 est (11 x 90 mm stem diameter) 40.2	3.6	N - 3.0 E - 4.0 S - 2.5 W - 3.0	MA	Fair/Fair	Multi-stem tree of moderate form. Previously pruned. Ivy in crown. ● No preliminary management recommendations at time of survey.	10+	C1
T5	Common Ash (<i>Fraxinus excelsior</i>)	13	512 est (1 x 200 mm, 1 x 250 mm and 1 x 400 mm stem diameter) 118.6	6.1	N - 6.0 E - 6.0 S - 5.0 W - 5.0 est	M	Good/Fair	Tree growing within boundary hedge. Ownership uncertain. First significant branch below 1.5 m above ground level. Canopy to 4.5 m above ground level at lowest point over site to east. ● No preliminary management recommendations at time of survey.	20+	B1
T6	Common Ash (<i>Fraxinus excelsior</i>)	13	360 58.6	4.3	N - 4.5 E - 5.0 S - 3.0 W - 4.0	MA	Good/Good	Growing to site boundary. Ivy to tree. Canopy to 2.5 m above ground level at lowest point (to east). ● No preliminary management recommendations at time of survey.	20+	B2
T7	Common Ash (<i>Fraxinus excelsior</i>)	13	300 40.7	3.6	N - 3.5 E - 2.5 S - 4.0 W - 4.0 est	MA	Good/Good	Some damage to base of trunk to south. Excavation or hollow adjacent to trunk. Some dead wood present. ● No preliminary management recommendations at time of survey.	20+	B2
T8	Monterey Pine (<i>Pinus radiata</i>)	18	890 358.4	10.7	N - 7.0 E - 7.0 S - 6.0 W - 8.5	M	Good/Good	Growing on small mound. Several significant limbs removed up stem - 150-200 mm stem diameter. Resin to wounds. Some limited dead wood and dieback in crown. Disturbed area of ground within rooting area. First significant branch at 2.5 m above ground level to south. Canopy to 2.5 m above ground level at lowest point (to north). ● No preliminary management recommendations at time of survey.	20+	B1
T9	Hornbeam (<i>Carpinus betulus</i>)	18	800 289.6	9.6	N - 7.5 E - 8.0 S - 4.5 W - 6.0 all est	M	Good/Fair	Offsite tree - full inspection of tree not possible. Growing within garden area within raised (decking) area and by shed. Growing over offsite scout hut. Previously pruned. Some damage in crown. ● No preliminary management recommendations at time of survey.	20+	B1

T10	False Acacia (Robinia pseudoacacia)	10	410 76.1	4.9	N - 5.0 E - 4.5 S - 4.5 W - 6.0	M	Fair/Fair	Squat form. Misshapen trunk. • No preliminary management recommendations at time of survey.	10+	C1
T11	Common Ash (Fraxinus excelsior)	15	450 91.6	5.4	N - 5.0 E - 5.0 S - 3.0 W - 6.5	M	Good/Fair	Offsite tree. Ivy to trunk. Growing on small bank. Slight lean to north. • No preliminary management recommendations at time of survey.	10+	C1

Tree Ref No.	Species Common Name (Latin Name)	Height (m) range	Stem Diameter (mm) Root Protection Area (m²) <i>Radius of Root Protection Area zone (m)</i>	Branch Spread - min (max) (m)	Age Class (general)	Physiological/ Structural Condition (general)	Comments (general) • Preliminary Management Recommendations	Estimated Remaining Useful Contribution (years)	Category Grading
G1	3 no. Monterey Pine (Pinus radiata)	12-15	430 - 640 83.7 - 185.3 5.2 - 7.7	N - 6.5 E - 5.5 S - 7.5 W - 5.5	MA-M	Good/Fair	Offsite trees. Some limited dieback in the crown. Small (animal) excavation within root area. Limited ivy growth to base of one tree. Misshapen crowns. Previously pruned. Canopy to 4.0 m above ground level at lowest point. • No preliminary management recommendations recommended at time of survey.	20+	B2

G2	3 no. Common Ash (Fraxinus excelsior) and 1 no. Hawthorn (Crataegus spp)	3-15	150 - 495 10.2 - 110.7 1.8 - 5.9	N - 6.5 est E - 4.5 S - 5.0 W - 6.0	Y-MA	Fair/Fair	Trees of moderate form. Growing in raised area 0.8-1.1 m above adjacent car park area to south. Area is retained by a brick wall. Trees are covered in ivy. Fencing and barbed wire/wire embedded to ivy and possibly trunks - this may be potential area of structural weakness. Canopies to 4.0 m above the car park area to south. ● Monitor condition of trees as part of any regular tree management programme. Include any degradation around area of embedded barbed wire.	10+	C2/C3
G3	4 no. Lawson Cypress (Chamaecyparis lawsoniana) and 1 no. Hawthorn (Crataegus spp)	3-14	100 - 600 4.5 - 162.9 1.2 - 7.2	N - 2.0 (3.0) est E - 1.5 (4.0) S - 3.0 W - 1.5 (3.0)	Y-M	Fair/Fair	Previously pruned. Growing in raised area 1.2 m above adjacent car park access. Adjacent to sub-station. Some fly-tipping adjacent to trees. Barbed wire embedded to trunk of 1 no. tree is a potential point of structural weakness. Ivy in some crowns. Canopies to 2.5 m above adjacent car park access. ● No preliminary management recommendations at time of survey.	10+	C2
G4	1 no. Holly (Ilex spp) and 1 no. Common Ash (Fraxinus excelsior)	9-15	350 est - 707 est (2 x 500 mm stem diameter) 55.4 - 226.2 4.2 - 8.5	N - 4.0 (5.0) est E - 3.5 (5.0) S - 4.0 W - 3.0 (5.0)	MA-M	Good/Fair	Offsite trees - full inspection of trees not possible. On top of dwarf wall approximately 1.4 m above adjacent car park access. Covered in ivy. Canopies generally to 4.0 m above ground level over car aprk access. ● No preliminary management recommendations at time of survey.	20+	B2/B3

G5	3 no. Field Maple (<i>Acer campestre</i>) and 1 no. English Oak (<i>Quercus robur</i>)	9-12	250 - 370 28.3 - 61.9 3.0 - 4.4	N - 3.5 (6.0) est E - 3.0 (5.5) S - 3.0 (5.5) W - 3.0 (5.0)	MA	Good/Fair	Growing to site boundary. Some dead wood present. Ivy growing to base of some trees. Canopies to 1.8 m above ground level at lowest point (to north). • No preliminary management recommendations at time of survey.	10+	C2/C3
G6	4 no. False Acacia (<i>Robinia pseudoacacia</i>) and 1 no. Common Ash (<i>Fraxinus excelsior</i>)	12-15	220 - 500	N - 3.5 (5.5) est E - 4.5 (7.5) S - 4.5 (7.5) W - 4.5	MA-M	Good/Good	Trees growing to site boundary. Previously pruned. Some deadwood present. Canopies to 1.8 m above ground level at lowest point. • No preliminary management recommendations at time of survey.	20+	B2