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**Arboricultural Impact Assessment:
Jacobs Douwe Egberts, Ruscote Avenue, Banbury – Site 2**

Prepared for:
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1. Introduction

- 1.1 I received instruction from Project Landscape Architects Barry Chinn Associates Ltd to prepare an Arboricultural Impact Assessment in respect of the Site 2 proposal at the Jacobs Douwe Egberts factory off Ruscote Avenue, Banbury, Oxfordshire, OX16 2QU. The intended development consists of the demolition of the existing vacant office building and erection of a surface level car park, providing 215 replacement car parking spaces, cycle parking and associated landscaping.
- 1.2 National recommendations for the consideration of existing trees within a development context are set out within BS5837:2012 *Trees in relation to design, demolition and construction - Recommendations*.
- 1.3 I undertook a Pre-Development Tree Survey in accordance with section 4 of the above Standard in order to detail the arboricultural constraints associated with potential development work at the site. This process was undertaken objectively without any regard to a particular development layout and has provided the arboricultural baseline information which has been built upon within this assessment.
- 1.4 The process of an Arboricultural Impact Assessment is set out within section 5.4 of the Standard and, wherever applicable, this document has been structured to accord with these recommendations.
- 1.5 Having regard to the arboricultural constraints identified during the initial survey I have been provided with the proposed layout and have assessed this in terms of the potential arboricultural impact.
- 1.6 This assessment is to be read in conjunction with the following drawings:
 - Barry Chinn Associates Ltd Landscape Architects (Contract number: 1953/19):
 - Drawing number: 01 - Tree Constraints Plan
 - Drawing number: 03 - Tree Retention, Protection and Removal Plan
- 1.7 In addition, my Pre-Development Tree Survey is shown at Appendix 1.
- 1.8 The application site is located to the south east of Ruscote Avenue and to the eastern side of an extant site entrance and security lodge, being located at grid reference SP 450 416.
- 1.9 Trees at the site are not understood to be the subject of any local authority administered statutory protection in the form of either a tree preservation order or by virtue of being located within a conservation area.

- 1.10 Trees planted within the public highway verge along Ruscote Avenue were identified at an early stage as an important amenity feature and have been included in the tree assessment with an alphabetical reference being assigned to the individual trees to differentiate them from those within the application area.
- 1.11 Referring to the British Geological Surveys' Geology of Great Britain Viewer, the bedrock geology is that of the Charnmouth mudstone formation being sedimentary bedrock. No superficial deposit has been recorded. However, from observations on site, there appears to be a deep, relatively structured topsoil which clearly supports adequate tree growth on the site and, in a precautionary manner, is considered potentially susceptible to compaction.
- 1.12 Given the nature of the site, the Forestry Act 1967 (as amended) currently applies to the land, in particular the potential requirement for a Forestry Commission felling licence should a significant volume of trees be proposed for removal. Upon the granting of full detailed planning permission, it is most likely that such a requirement will no longer be appropriate. However, future arboricultural advice should be sought.
- 1.13 This report is presented in the following format:
- Section 2: Review of tree cover
 - Section 3: Development impact
 - Section 4: Construction phase protection
 - Section 5: Conclusions
 - Appendix 1: Pre-Development Tree Survey
 - Appendix 2: Preliminary Arboricultural Method Statement

2. Review of tree cover

- 2.1 The Pre-Development Tree Survey took account of 27 arboricultural features within the application site (excluding those on the highway verge which were surveyed as trees A to G inclusive).
- 2.2 Within the site, there were four groupings of trees with the remainder being surveyed individually. Of the individual trees, four were awarded the highest Category A value, 11 Category B value and eight Category C. No individual trees were classified as Category U meaning that they would be recommended for removal irrespective of development.

- 2.3 For the groups, a single group was classified as Category B, whilst two groups were Category C with the final group having a collective value of Category U, being recommended for removal at this stage (albeit not effected by any potential development).
- 2.4 In terms of highway trees, the majority were Category A with only two being downgraded to Category B value.
- 2.5 The tree cover is illustrated below with the aid of photographs taken at the same time as the pre-development tree assessment unless otherwise stated.
- 2.6 Trees 1, G2, 3 and 4 grow to the rear of the boundary palisade fence at the upper crest of a steep sided embankment located beyond the existing perimeter road to the factory.

Photograph 1: Boundary trees on top of embankment viewed from the east.



- 2.7 Tree 8 is coppice regeneration from a previously felled ash tree and grows amongst an outgrown shrubbery surveyed as group G9, for which the arboricultural elements are mainly restricted to younger self-sown trees of mediocre only form.

Photograph 2: Showing coppiced base of ash tree 8 (photograph taken in May 2019 when more visible).



Photograph 3: Part of group G9 viewed from the south.



- 2.8 Trees 10 to 19 have a collective impact growing upon either the sloping embankments or the upper level of the landscaping mound.

Photograph 4: Showing trees 10 to 12 viewed from the north.



Photograph 5: Showing trees 10 to 19 inclusive viewed from the south.



- 2.9 Tree 20 is a prominent frontage, high value London plane tree that has co-evolved with Norway maple tree G growing in the public verge.

Photograph 6: London plane tree 20 viewed from the south east with Norway maple tree G visible in the background (photograph taken in May 2019).



2.10 Plane trees 21 to 24 inclusive form one half of an avenue feature to either side of the main access into the site with the security lodge in the centre. The north western tree, tree 21, is the best developed and grows in the most conspicuous location.

Photograph 7: Plane trees 21 to 24 viewed from the east (photograph taken in May 2019).



2.11 Apple tree 26 and group G27, formed from cypress and yew, are located within the amenity space set back slightly within the factory footprint close to the nitrogen production plant.

Photograph 8: Apple 26 viewed from the west.



Photograph 9: Group G27 showing the declining trees within.



- 2.12 By way of summary, only those trees growing closer to the boundary are prominent in amenity terms with the primary visual amenity role being played by the trees planted upon the highway verge itself. In the main, the trees form part of deciduous cohesive groups. However, certain trees such as plane trees 20 and 21 are more prominent and conspicuous in individual terms.
- 2.13 The trees are in varying condition but typically are only in early maturity meaning that many of them have considerable intrinsic longevity. Some, however, are transitional with only a limited contribution and there are obvious gaps in the frontage enabling potential replanting, increasing diversity and, importantly, the age structure to secure long term amenity provision.

3. Development impact

- 3.1 The proposal is constrained by the existing highway access and location of the security lodge plus the sloping embankments, reducing in level down to the extant car park.
- 3.2 In order to retain as many trees as is practicable, retaining structures have been incorporated with careful consideration as to their location in relation to the root protection areas of retained trees and ensuring that existing ground levels around the bases of retained trees are not disturbed.
- 3.3 The new entrance into the car park, carefully informed by vehicle tracking, is located to the south east of retained plane tree 21 with all the construction occurring sufficiently beyond the crown spread and its root protection area to ensure it will not be negatively impacted and may be successfully protected during the construction period.
- 3.4 The remainder of the plane trees to the north east of the lodge are to be removed to facilitate the proposals. However, the most significant specimen, tree 21, is retained alongside trees 18, 19 and 20, meaning that collectively there will be only limited negative visual impact as a result of the works as the most conspicuous trees are protected and retained.
- 3.5 Further trees growing upon the slopes of the embankment are to be removed in order to create a level zone for the car park formation.
- 3.6 A small section of group G9 to the south western tip is also to be removed. However, provision will be made for new woodland thicket mix planting once the ground levels have been remodelled. Trees to the north east of this point remain entirely unaffected by the proposals with the only other area of tree loss being that in the easternmost section where Category C apple tree and Category U group G27 will be lost to facilitate the development.
- 3.7 Sufficient Landscaping sections have been drawn through the boundary where trees are retained in order to demonstrate where existing ground levels are successfully maintained but also showing the construction zone for the retaining structures as being sufficiently beyond the root protection area to allow for its adequate protection.
- 3.8 Remaining trees have no significant crown overhang beyond the areas of construction, reducing the likelihood of any conflict during the earthworks and construction process itself.
- 3.9 New deciduous tree planting is proposed, in particular utilising any opportunity along the site frontage, and in addition a new native hedgerow will be formed beyond the retaining structures and without any detriment to the root protection areas of retained trees.

3.10 Plane tree 21 has a slightly asymmetric crown due to it having co-evolved with further plane trees adjacent to the security lodge. However, being an end of line tree, this specimen has the better developed crown and when viewed from the public frontage will remain visually unaltered.

3.11 By way of summary, tree loss to facilitate the development is shown in Table 1 below.

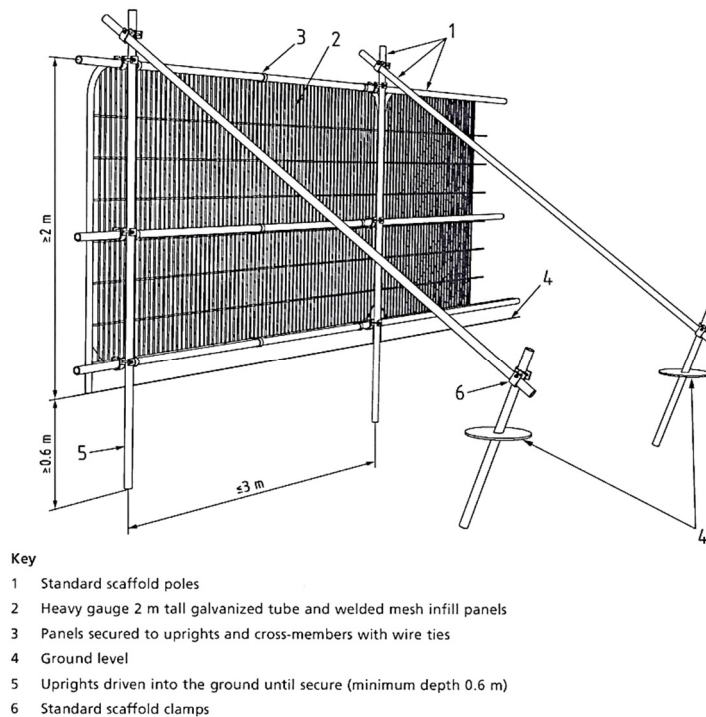
Tree survey reference	BS5837 Retention Category	Comments
Individual trees		
10	B	
11	B	
12	B	
13	C	
14	B	
15	B	
16	C	Indications of crown decline
17	B	
22	B	
23	B	Suppressed
24	B	Footpath being displaced by near-to-surface rooting
25	C	
26	C	
Groups of trees		
G9	C	South western tip of group removed only.
G27	U	Obscured from frontage. Majority of group dying/compromised.

3.12 All other trees and groups remaining will be protected against negative impact during the development period as per the section below.

4. Construction phase protection

- 4.1 Following the granting of all necessary permissions, trees approved for removal should be removed (dismantling where required) and self-set groups cleared ahead of construction related activity. The timing of tree works in relation to ecological restrictions will need to be further considered and the methodology for the works will be further considered within a finalised arboricultural method statement.
- 4.2 Immediately following tree works and ahead of any other construction related activity on site, a robust tree protection scheme shall be implemented to protect all remaining trees and their secured root protection areas and/or structural landscaping zones from construction related activity.
- 4.3 In the unlikely event that any temporary working access is required which encroaches into protected areas, appropriate ground protection measures would be required. Presently, the full extent of the construction exclusion zone is safeguarded.
- 4.4 The alignment of the tree protection barriers is to accord with the Tree, Retention Protection and Removal Plan.
- 4.5 The default barrier is to accord with Figure 2 of BS5837:2012.

Extract from BS5837: 2012 *Trees in relation to design, demolition and construction – Recommendations*, Figure 2 Default specification of protective barrier



- 4.6 This robust protection barrier is based upon a scaffold framework with driven vertical posts and diagonal bracing where necessary to ensure the barrier remains fit for purpose throughout the duration of the construction period.
- 4.7 Once erected, the barrier must be considered sacrosanct and protected areas must not be subject to any form of development related activity, in particular excavation or any ground alterations.
- 4.8 The protection barrier shall not be removed or the alignment altered or temporarily dismantled without the agreement of the Project Arboriculturalist and, where necessary, the consent of the local planning authority.
- 4.9 At approximately 10m linear intervals, waterproof signs are to be affixed to the barrier with wording facing the side of construction activity stating: Construction Exclusion Zone – Keep Out.
- 4.10 The responsibility for monitoring the protection barriers and maintaining them in an appropriate condition throughout the course of development will be clearly assigned to site management personnel and augmented by independent arboricultural monitoring.
- 4.11 Sheet material and/or wooden hoarding shall not be attached to the barriers where this would hinder monitoring of protected areas behind.
- 4.12 When working beyond the barrier, consideration must still be given towards activities that may negatively affect the protected soil beyond. This includes the possible spillage of phytotoxic fluids including herbicides, chemicals and oils/fuels along with alkaline concrete/mortar slurry. Such precautions are particularly pertinent due to the sloping ground.
- 4.13 No fires are to be lit within 10m of any tree protection barriers.
- 4.14 Whilst welfare facilities may potentially be incorporated into the tree protection barrier, there must be no temporary service connections both above and below ground into protected soil zones.
- 4.15 Static internal combustion engines such as those associated with generators should not be positioned so that exhaust emissions are directed towards remaining trees.

5. Conclusions

- 5.1 To implement the scheme, it is necessary to remove a number of Category B and Category C trees. Although retention of these Category B trees would be desirable, they are typically trees set back from the frontage and/or growing at a lower level. In landscaping terms, trees identified for removal are subservient to the more prominent trees towards the boundary of the site, again augmented by the high quality highway trees in the public verge.
- 5.2 Despite considerable effort at the design stage, greater tree retention is prohibited by the necessary changes in level with many of the existing trees growing upon sloping ground.
- 5.3 All high value Category A trees are retained and have a suitable juxtaposition to the new car park. In addition, opportunities have been taken for new, high quality tree, hedge and woodland thicket mix planting to help sustain the high contribution of the site's well-landscaped frontage in the long term.
- 5.4 The development proposals have been sufficiently interrogated to ensure that all retained trees may be robustly and fully protected in accordance with best practice with such safeguarding being secured by conditions attached to any planning grant.
- 5.5 On the basis that the proposed development accords with the principles of acceptable development and given the scheme ensures the retention of all higher value boundary trees, then upon assessment, the proposal is considered acceptable on arboricultural grounds.

Signed:



Ben Bennett BSc (Hons) For, Cert Arb (RFS), MArborA
Director, BB Trees Ltd

Appendix 1: Pre-Development Tree Survey of July 2021

A1. Tree survey assessment notes

A1.1 This tree survey has been structured to accord with the requirements of Sections 4.4 and 4.5 of British Standard 5837 of 2012: *Trees in relation to design, demolition and construction – recommendations*. The columns in the tree survey assessment refer to the following items:

Tree/Group number: Tree reference number as shown on the associated drawings.

Common name *Botanical name*: Identifies individual species by common name. For avoidance of doubt the botanical name is shown *in italics*.

Tree height: Estimated height of the tree in metres.

Stem diameter: Diameter of the trunk(s) measured in accordance with Annex C of the Standard and expressed in millimetres.

Branch spread: Measured radial spread of the crown broken down into the four main compass points and expressed in metres.

Height above ground level of: Estimated measurement (in metres) to inform on ground clearance, crown/stem ratio and shading presented in two sub-categories:

- First significant branch (at point of attachment with parent stem) and direction of growth (eg 2.4 N).
- Canopy ie assessment of clearance above ground of lowest branch tips. Where irregular, and potentially significant towards development proposal, direction of assessed crown height has been added.

NB: For tree height, stem diameter and branch spread, the measurement conventions are as follows:

- Height and crown spread are recorded to the nearest half metre (crown spread being rounded up) for dimensions up to 10m and the nearest whole metre for dimensions over 10m.
- Stem diameter is recorded in millimetres (using a calibrated girth tape), rounded up to the nearest 10mm (0.01m).
- Estimated dimensions (eg for off-site or otherwise inaccessible trees where accurate data cannot be recovered) are identified by being suffixed with a #.

Life stage: The estimated age: young, semi mature, early mature, mature or over mature, shown as Y, SM, EM, M or OM respectively.

Physiological condition: Physiological condition being good, fair, poor or dead, shown as A, B, C or D respectively.

Structural condition: Structural condition being good, fair, poor or dangerous (eg collapsing, the presence of decay and physical defects), shown as A, B, C or D respectively.

General observations, including preliminary management recommendations: Particularly of structural and/or physiological condition, including further investigations of suspected defects that require more detailed assessment and potential for wildlife habitat.

Estimated remaining contribution in years (RC): <10, 10–20, 20–40 or >40.

Retention category (RC): Categorisation of survey trees in accordance with Section 4.5 and Table 1 of the Standard.

- **U (dark red):** Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (eg where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).

Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.

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

NOTE: Category U trees can have existing or potential conservation value that it might be desirable to preserve.

- **A (light green):** Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Mainly arboricultural qualities: Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups or of formal or semi-formal arboricultural features (eg the dominant and/or principal trees within an avenue). Indicated by 1 in brackets after the appropriate category classification.

Mainly landscape qualities: Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Indicated by 2 in brackets after the appropriate category classification.

Mainly cultural values, including conservation: Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg veteran trees or wood-pasture). Indicated by 3 in brackets after the appropriate category classification.

Trees with an estimated remaining life expectancy of at least 20 years.

- **B (mid blue):** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Mainly arboricultural qualities: Trees that might be included in category A, but are downgraded because of impaired condition (eg presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years or trees lacking the special quality necessary to merit the category A designation. Indicated by 1 in brackets after the appropriate category classification.

Mainly landscape qualities: Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives, but situated so as to make little visual contribution to the wider locality. Indicated by 2 in brackets after the appropriate category classification.

Mainly cultural values, including conservation: Trees with material conservation or other cultural value. Indicated by 3 in brackets after the appropriate category classification.

- **C (grey):** Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Mainly arboricultural qualities: Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. Indicated by 1 in brackets after the appropriate category classification.

Mainly landscape qualities: Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value and/or trees offering low or only temporary/transient landscape benefits. Indicated by 2 in brackets after the appropriate category classification.

Mainly cultural values, including conservation: Trees with no material conservation or other cultural value. Indicated by 3 in brackets after the appropriate category classification.

Tree 1 to tree G were inspected by Ben Bennett from ground level only on Tuesday 20 July 2021. Weather conditions were dry and bright with good visibility from ground level.

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations		RC (years)	Category	
					First branch	Canopy		Physiological condition	Structural condition			
1	Broad leaved lime <i>Tilia platyphyllos</i>	15	560	N 6.5# E 6.5 S 5 W 5#	2.4	0–2.5	EM	A	A	Set back from palisade frontage fence separating survey site from public footpath with crest of steep sided embankment at around 1m on southern side. Congested crown exhibiting good vigour but with only very small diameter deadwood which is not a health and safety concern at present. Remove basal suckers. Shorten secondary growth over footpath to maintain around 3m clearance.	>40	A (1+2)
G2	8no birch <i>Betula spp</i>	Up to 14	Up to 360	N Up to 5.5 E Up to 5.5 S Up to 5.5 W Up to 5.5	N/A	2–4	EM	B	B	Trees have been established immediately to the rear of the palisade fence with a steep sided 1:1 to 1:2 embankment on the southern side. Trees previously crown lifted on fence side giving significant clearance over public footpath, typically with a slight growth bias into the site. Minor deadwood only. For tree closest to tree 1, cut back basal suckers and epicormic growth from lowest 2.5m of trunk. Remainder of group require no works at present.	20–40	(B) (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
3	Small leaved lime <i>Tilia cordata</i>	12	510	N 5 E 5.5 S 7.5 W 4	1.9 S	2 S	EM	A	B	Restricted rooting architecture with significant near-to-surface roots extending down embankment on southern side. Congested crown with a number of acute branch unions exhibiting some included bark, however crown relatively well sheltered. Small diameter crossing and chafing branches, however crown retains high vigour. No works required at present.	>40	A (2+3)
4	Small leaved lime <i>Tilia cordata</i>	12	560	N 6.5# E 4 S 7.5 W 7	1.6 S	1 S	EM	C	B	Near-to-surface roots, particularly on western side. Co-dominant crown structure. Suffering slightly from suppression, although generally fair. Reduced crown density, which is less than optimum. However, no current dieback. Avoid mowing damage to near-to-surface roots.	>40	B (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
5	False acacia <i>Robinia pseudoacacia</i>	14	640	N 8# E 6 S 7 W 6	2.3 S	2–3	M	B/C	C	Heavily reliant upon companion shelter provided by adjacent acacia. Acute main fork at 1.8m. Self-set saplings growing from build up of detritus suggesting likelihood of some decay. Pay particular attention to main fork during future assessments. Retain only alongside dominant acacia tree 6.	20–40	C (2)
6	False acacia <i>Robinia pseudoacacia</i>	17	580	N 6.5# E 5 S 6 W 6	3.5 W	3	EM	A	B#	Dominant false acacia. Trunk bifurcates at 2.2m resulting in an acute main fork with clear open lipped bark seam on southern side (similar but to a lesser extent to the north) indicating a lack of stem fusion. Small to medium sized deadwood within crown, however maintaining fair vigour. Remove dead and defective branches. Install three low stretch cable braces uniting the three stems at around 9–10m above ground level in a triangular configuration. Pay particular attention to main fork during future monitoring.	>40	B (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
G7	False acacia <i>Robinia pseudoacacia</i>	Up to 7.5	Up to 110	Up to 4	N/A	0	SM	B	C	Basal sucker regrowth from around perimeter of old felled stump. Inappropriate for future growth in this location. Cut all suckers to near ground level and chemically treat to abate future regrowth. Opportunity for additional replanting adjacent.	<10	(U)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
8	Ash <i>Fraxinus excelsior</i>	17	440# 330# 290# 420#	N 7.5# E 8 S 8.5 W 7#	3 N	1.5–2	EM	B/C	C#	<p>Omitted from topographical survey and approximate only position shown on associated Tree Constraints Plan.</p> <p>Since the previous assessment, the tree has become heavily clad in ivy preventing thorough inspection/ measurement of trunk dimensions.</p> <p>Tree is clearly of coppice regeneration following the felling of a parent tree many years ago located within the dense overgrowing shrubbery.</p> <p>Initially, it appears highly likely that there is a degree of dysfunction and/or decay in the lower trunk structure. Minor deadwood only present in crown.</p> <p>Very early indications of peripheral crown thinning, likely associated with the onset of ash dieback.</p> <p>Sever and strip ivy from lowest 2m of trunks. Clear any remaining vegetation away from lower trunks and remove any build up of detritus, allowing a thorough inspection.</p> <p>Tree appears unsuitable for retention into full maturity due to the heightened risk of individual stem collapse due to its lapsed coppice form.</p> <p>RC provisional only.</p>	10–20	C (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
G9	Norway maple <i>Ace platanoides</i> Wild cherry <i>Prunus avium</i> Ash <i>Fraxinus excelsior</i> Hawthorn <i>Crataegus monogyna</i> Hazel <i>Corylus avellana</i>	Up to 7	Up to 130	N/A	0	0–1	Y–SM	A–C	B (average)	Group entry relates to self-set tree species present within overgrown shrubbery. All trees have self-seeded with some clearly being of poor and compromised form, rendering them inappropriate for retention into full maturity. Rogue out inappropriate self-set trees while modest in size, ensuring that cut stumps are directly treated with an appropriate herbicide to limit regrowth. Any retained trees should be assessed for suitable formative pruning to maximise their potential long term value.	10–20	(C) (2)
10	Small leaved lime <i>Tilia cordata</i>	10	490	N 6.5 E 7 S 7 W 6	1.8 W	2 (average)	EM	B	B	Somewhat contorted crown that is co-dominant with adjacent lime. Indications of pruning during early establishment at mid-crown height. Lacking a central dominant leading stem above 4.5m. Occasional chafing branches. No works required at present.	>40	B (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
11	Small leaved lime <i>Tilia cordata</i>	12	480	N 6.5 E 4 S 7 W 4.5	1.8 N	0 S	EM	A	B	Co-dominant crown structure. Significant root flare with disrupted bark but no indications of any dysfunction. Congested crown with small diameter crossing and chafing branches but free from significant defect. No works required at present.	>40	B (2+3)
12	False acacia <i>Robinia pseudoacacia</i>	13	400	N 4.5 E 3 S 4.5 W 5	2.2 W	2	EM	A	B	Slightly suppressed crown on eastern side, however retaining good form. Small diameter deadwood only in centre of crown. No works required at present.	>40	B (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
13	False acacia <i>Robinia pseudoacacia</i>	9.5	480	N 4 E 8.5 S 9 W 8#	1.7 S	3 (average)	EM– M	B/C	B	<p>Tree grows to edge of group with a strong bias in a southerly direction. At the base of the trunk on the southern side, there is the start of a necrotic seam of minor decay. First branch at around 1.7m appears to have a less than ideal union with the parent stem and is heavily end weighted. A further fork at 2.2m is acute with a build up of detritus from which there is a self-set hawthorn growing.</p> <p>Viewing the tree within the active growth season, the crown density is considered fair. There is considered to be an increased likelihood of the lowest branch potentially subsiding and shedding, particularly as outer growth becomes more end weighted. Overall, the tree benefits significantly from shelter provided by the following lime.</p> <p>Acceptable at present as part of wider group. Limited longevity.</p> <p>It is recommended that peripheral growth on the lowest primary branch on the southern side be shortened by around 2m in length.</p> <p>Deadwood should be removed at the same time.</p> <p>Tree should be paid particular attention during future monitoring.</p>	10–20	C (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
14	Small leaved lime <i>Tilia cordata</i>	13–14	560	N 9 E 6 S 7.5 W 8	2.5 W	2.5–3	EM	A	B	Dominant lime tree in immediate grouping. Crown based upon co-dominant stems emerging from around 2.5m above ground level, however union partially obscured from inspection. Crown appears free from any significant defect but is somewhat congested. No works required at present.	>40	B (2+3)
15	Small leaved lime <i>Tilia cordata</i>	14	370	N 5 E 4 S 5 W 6	2.5 W	3	SM/ EM	B	B	Narrow, drawn up tree with limited radial crown spread but maintaining good vigour. Occasional chafing branch in the southern side of the crown. No works required at present.	>40	B (2+3)
16	False acacia <i>Robinia pseudoacacia</i>	13	510	N 5 E 5 S 6.5 W 7	1.8 W	3–4	EM	B	B	Growing from the edge of a shrubbery with some shrub stems climbing up against lower trunk. Deadwood beginning to accumulate within crown including on the car park side. Some suspected crown recession noted during previous survey. However, current vigour fair. Remove dead and defective branches and monitor vigour.	20–40	C (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
17	Small leafed lime <i>Tilia cordata</i>	16	550	N 7 E 6 S 7 W 6.5	1.8 N	3 (average)	EM	A	B	Dominant tree within grouping. Main trunk bifurcates at around 2.6m whereby the co-dominant stems share a slightly acute union with clear signs of included bark to the east. Congested crown with a number of crossing and rubbing branches. No works required at present. Pay particular attention to main fork during future monitoring.	>40	B (2+3)
18	Small leafed lime <i>Tilia cordata</i>	10	460	N 8.5# E 5 S 7 W 5	1.9 E	2–3	EM	B	B	Low spreading habit due to low fork at 1.8m which has produced a potentially weak union, albeit relatively well sheltered within the group. Tree reliant upon companion shelter. Superficial bark wound on downhill side of trunk. Crown lift branches hanging low over pavement to give 3m clearance and monitor root heave within pavement surface. Retain only as part of wider group. Pay particular attention to main fork during future monitoring.	>40	C (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
19	Small leaved lime <i>Tilia cordata</i>	12	470	N 6.5# E 4 S 6.5 W 7#	1.8 W	2.5	EM	A	B	Asymmetric crown due to being on edge of group. Near-to-surface roots, some of which have inevitably been damaged during mowing operations. Part reliant upon companion shelter. Retain as part of wider group. No works required at present.	>40	B (2+3)
20	London plane <i>Platanus x hispanica</i>	16	640	N 10 E 9 S 8 W 7.5#	2.4 SW	1	EM	A	A	An open grown specimen with a slight growth list to the north. Previous service trenching at around 5m due east, however no indications of any impact upon the crown. Free from any significant defect. Crown lift branches hanging low over pavement to give 3m clearance and monitor root heave within pavement surface.	>40	A (1+2)
21	London plane <i>Platanus x hispanica</i>	17	680	N 9.5 E 9.5 S 7 W 9	3 W	3–4	EM	A	A	End specimen in a line of four contemporary plane trees. Recently installed service chamber at around 2.5m. Occasional dead branch including some small hung up dead branches. Light ivy now cladding trunk to 3m above ground level. Crown lift all round to give approximately 4m clearance above ground level. Remove remaining significant deadwood.	>40	A (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
22	London plane <i>Platanus x hispanica</i>	16	510 over light ivy	N 7 E 7 S 6.5 W 7	2.8 SE	3 (average)	EM	B	B	A drawn-up tree with a co-dominant crown structure that has previously been pruned on the road side, however often cutting internodally. Part reliant upon companion shelter and its value is as a component of a wider group. Lightly clad in ivy to around 3m above ground level. Regenerating well following previous pruning. Sever ivy.	>40	B (2)
23	London plane <i>Platanus x hispanica</i>	15–16	510 over ivy	N 7 E 6 S 6 W 7#	3.5 E	3–4	EM	B/C	B/C	Suppressed tree with flattened crown architecture. Numerous dead/dying back lower branches; some with the saprophytic fungus Jew's ear present. Ivy growing rampantly, indicating tree is heavily suppressed. Remove dead and defective branches. Sever ivy and allow to die back. Pay particular attention to tree during future monitoring. Tree's value is as a component of a wider group rather than individual contribution.	20–40	C (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
24	London plane <i>Platanus x hispanica</i>	16	620 over ivy	N 7.5 E 9.5 S 9# W 9–10#	2.5 N	3 (average)	EM	A	B	<p>An end specimen in a line of four plane trees with a slightly suppressed crown on the northern side. Ivy growth becoming dense to around 5m above ground level.</p> <p>To a distance of 2.5m on the southern side, a substantial (130mm in diameter) near-to-surface root is evident. It is apparent that an area of localised footway repair has been required, however the current cast-in-situ concrete is becoming displaced, likely due to near-to-surface rooting.</p> <p>Branches previously selectively shortened on the side of the security lodge. Minor deadwood only present.</p> <p>Clear shrubbery from around base. Sever ivy and strip from lower trunk. Remove dead and defective branches.</p>	>40	B (2+3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
25	False acacia <i>Robinia pseudoacacia</i>	15	580# over ivy	N Up to 6 E Up to 6 S Up to 6 W Up to 6	3.6 N	3 (average)	M	B	B#	Becoming festooned in ivy, obscuring the lowest 6m of the main structure from assessment/measurement. Where visible, the upper crown retains reasonable vigour with only very small diameter deadwood. Cut back shrub bed. Clear ground ivy and strip as much as is practicable from the trunk of the tree. Pay particular attention to tree during future monitoring. RC provisional only.	20–40	C (2)
26	Apple <i>Malus domestica ssp</i>	4.5	280	N 4.5 E 4.5 S 4.5 W 4.5	N/A	0.5	M	B	B	Trunk has a list to the south east towards adjacent nitrogen production plant. Low mop-headed crown with limited room for mowing beneath. Heavily congested with multiple crossing and chafing branches but maintaining good vigour. Minor woolly aphid infestation. No works required at present. If required, crown lift to give around 1.3m clearance beneath circumference.	10–20	C (3)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
G27	Cypress <i>Cupressus spp</i> Elder <i>Sambucus nigra</i> English yew <i>Taxus baccata</i>	Up to 7	140–290#	2–3 (average)	N/A	0–1	SM– EM	C–D	B–D	<p>Planted as what is assumed to have been a low level screen around underground tank. Elder of self-set origin and it appears likely the yew is also self-set.</p> <p>Trees on the northern side of the group, in particular, show significant crown stress which has been ongoing for a number of years, likely due to hostile rooting environ.</p> <p>The trees to the northern side of the group have continued to decline, currently being between 70% and 80% dead and approaching a moribund state.</p> <p>Collectively, the grouping is of minimal arboricultural merit.</p> <p>Dying/dead trees should be removed.</p>	<10	(U)

Trees growing within the public highway verge with alphabetical reference as shown on associated Tree Constraints Plan

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
A	Norway maple <i>Acer platanoides</i>	11	520	N 7 E 6.5 S 5 W 7	2.8 W	2.5–3	EM	A	B	Minor damage to root buttresses. Small diameter internal deadwood. Deadwood should be removed.	>40	A (2)
B	Norway maple <i>Acer platanoides</i>	14	580	N 7 E 7 S 6 W 8	2.4 W	2.5	EM	B	A	Dominant tree of excellent form. Slight girdling root buttress. Small diameter deadwood. Remove deadwood from crown.	>40	A (2)
C	Norway maple <i>Acer platanoides</i>	14	450	N 6 E 6 S 6 W 6	2.6 W	2.5–3	EM	B/C	B	Small diameter deadwood in crown only including some failed and hung up branches. Minor damage to root buttresses. Slight peripheral crown dieback. However, current crown density appears fair. Remove dead and defective branches and monitor.	>40	A (2)
D	Norway maple <i>Acer platanoides</i>	14	530	N 7 E 7 S 7 W 7	2.6 S	2.5	EM	B	B	Minor historic damage to root buttresses. Minimal heave to tarmac pavement surface. Crown lift all round to give 3m clearance. Remove dead and defective branches.	>40	B (2)

Tree/ Group number	Common name <i>Botanical name</i>	Tree height (m)	Stem diameter (mm)	Branch spread (m)	Height above ground level (m) of:		Life stage	General observations, including preliminary management recommendations			RC (years)	Category
					First branch	Canopy		Physiological condition	Structural condition			
E	Norway maple <i>Acer platanoides</i>	9–10	390	N 6 E 6 S 6 W 6	2.6	2.5	EM	B	B	Four runs of light deflection by way of tarmac heave within the footway surface. Crown lift to give 3m clearance over pavement. Monitor tarmac heave.	>40	B (2)
F	Norway maple <i>Acer platanoides</i>	9.5	490	N 6.5 E 6.5 S 6.5 W 6.5	2.6 S	2.5	EM	B	B	Minor runs of tarmac heave within footway surface with roots clearly spreading into adjacent Jacobs Douwe Egberts site. Low consolidated crown. Slight thinning of crown, particularly on northern side. Crown hanging low over pavement. Crown lift to give 3m clearance over pavement. Monitor tarmac heave.	>40	B (2)
G	Norway maple <i>Acer platanoides</i>	16	560	N 8 E 7# S 7 W 8	2.8 S	2.5 (average)	EM	A	A	Runs of surface heave within adjacent footway and historic damage to near-to-surface roots/buttress region. Minor deadwood within centre of crown. Existing services within root protection area radius. Crown lift all round to give 3m clearance. Monitor tarmac heave.	>40	A (2)

Appendix 2: Preliminary Arboricultural Method Statement

Pre-commencement tree works

- A2.1 Tree removal is strictly to be in accordance with the Tree Retention, Protection and Removal Plan. The need for any access facilitation pruning is unlikely but is to be further considered in light of detailed design.
- A2.2 In general terms, all tree works are to comply with BS3998:2010 *Tree work – Recommendations* wherever applicable and is to be undertaken by a specialist and suitably qualified arboricultural contractor.
- A2.3 Wherever possible, tree works, in particular the removal of dense tree groups with overgrown ground vegetation, are to be specified for actioning outside of the closed bird nesting season, typically extending from March until July. Should any tree works be required within this period then further specialist ecological advice should be sought. It is also appropriate to consider any other ecological restrictions due to protected species which may apply to the site.
- A2.4 Tree works are to be subject to future arboricultural advice to ensure that any necessary consents are in hand, which is particularly pertinent to tree works to be undertaken ahead of the granting of full detailed planning permission.
- A2.5 Should stump removal be required within the root protection area of any remaining trees (including those within the highway verge), such stumps should be removed using a specialist arboricultural stump grinder to ensure roots for remaining trees are not unacceptably damaged.

Ground protection

- A2.6 It is intended to fully safeguard all protected zones by virtue of a robust protection barrier erected to the outer edge of the root protection area. Should temporary construction access be required into these areas then the need for ground protection must be further considered.
- A2.7 Any excavation for trenches associated with new services are to occur beyond the root protection area of any remaining tree or group as identified on the Tree Constraints Plan.

Landscaping within root protection areas

- A2.8 Substantial planting pits associated with new trees have been avoided within the root protection area of any remaining trees or vegetation. Any landscaping proposed within protected zones is to be undertaken without deep mechanical cultivation, typically being restricted to planting of only small whips or cell grown trees or shrubs.

Arboricultural monitoring

- A2.9 Arboricultural monitoring and future input is envisaged. This shall include providing a detailed specification for any necessary tree works including the identification of trees on site if necessary. The Project Arboriculturalist shall also confirm the correct installation of the tree protection scheme prior to the commencement of the main construction activity and will also undertake monitoring visits.
- A2.10 Should at any stage of construction activity, it appear that to proceed with the approved development will result in conflict with retained trees then further arboricultural advice must be sought by contacting Ben Bennett at ben@bbtrees.co.uk or 07949 797656.