

ARBORICULTURAL IMPACT ASSESSMENT & TREE PROTECTION STRATEGY

Ashley Pines, Barnet Gate Lane, Barnet, EN5 2AA

Prepared For: Toast Developments Limited

For submission to: London Borough of Barnet Council

Reference: MDJAC-22.158-AIA-02

Date: May 2023

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EXECUTIVE SUMMARY

- S1. This Arboricultural Impact Assessment (AIA) has been instructed by Toast Developments Limited; the owner of the subject property: Ashley Pines, Barnet Gate Lane, Barnet, RN5 2AA.
- S2. This report is intended to be submitted as part of the supporting technical information for a planning application for the re-development of the site and has been prepared in accordance with British Standard BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'.
- S3. One group of trees (G11) will be removed entirely and one group of trees (G13) will be partially removed as part of the proposed re-development; the remaining trees will be retained and protected appropriately throughout the construction works. The partial removal of G13 has been approved under planning reference 23/0373/HSE. The principal arboricultural features of the site, set out at **Table 2**, will be retained. The removal of the trees identified as such will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in a significant, long-term or irreversible impact on the arboricultural character of the site.
- S4. The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the trees identified above. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.
- S5. Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at Appendix 2.
- S6. In light of the assessments set out above, there are no arboricultural reasons to suggest that the construction of the proposed properties will result in an unsustainable relationship with the retained tree stock, despite their proximity.
- S7. Based on the above considerations, I conclude that the overall arboricultural impact of the proposals is negligible, as defined at **Table 1**.

1 INTRODUCTION

1.1 INSTRUCTION

1.1.1 This Arboricultural Impact Assessment (AIA) has been instructed by Toast Developments Limited; the owner of the subject property: Ashley Pines, Barnet Gate Lane, Barnet, RN5 2AA.

1.2 TERMS OF REFERENCE (TOR)

1.2.1 This report is intended to be submitted as part of the supporting technical information for a planning application for the re-development of the site and has been prepared in accordance with British Standard BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.2.2 The agreed scope of work is outlined below:

1. To undertake a site visit and tree inspection of the trees within influencing distance of the proposals, in accordance with BS5837:2012;
2. To produce a package of documents outlining the arboricultural constraints associated with the existing trees, and to comment on a series of trial excavations during the evolution of the proposed site layout; and
3. To produce this arboricultural impact assessment; identifying the impact of the proposals and what working methodologies or protection measures should be adhered to, to ensure successful integration of the proposals into the existing landscape.

1.2.3 This report should be read in conjunction with the documents and plans listed below for context:

- The tree survey schedule (ref. MDJAC-22.158-TSS-01); and
- The tree protection plan (ref. MDJAC-22.158-TPP-02).

1.3 AUTHOR

1.3.1 I am Matthew Jones BSc (Hons), MArborA, the Director and Principal Arboriculturist of MDJ Arboricultural Consultancy Limited.

Formal qualifications

1.3.2 I hold a Bachelor of Science Degree with Honours in Arboriculture and Urban Forestry, awarded by The University of Central Lancashire (UCLan) in 2022. This is a top up degree following successful completion of a Foundation Degree in Arboriculture, also awarded by UCLan in 2020. I have also completed the National Diploma (RQF Level 3) in Arboriculture and Forestry at Merrist Wood College, Guildford in 2009.

Industry-related accreditations

1.3.3 During the course of my career I have attended various CPD events and courses. I hold the Professional Tree Inspection accreditation awarded by LANTRA and I am a registered user of The International Society of Arboriculture (ISA) Tree Risk Assessment Qualification (TRAQ) methodology.

Professional memberships

1.3.4 I am a Professional Member of the Arboricultural Association (The AA) and an Associate Member of The Institute of Chartered Foresters (The ICF). I am therefore bound by the code of ethics and required to uphold the professional standards expected of both professional bodies.

Overview

1.3.5 I am regularly instructed to carry out appraisals of various sizes of tree stocks in relation to development, health and safety considerations, and the potential impact of trees on the built environment; and I am required to provide considered tree management recommendations as necessary during the course of these instructions.

1.4 TREE PRESERVATION ORDERS (TPOs)

1.4.1 I am in receipt of an electronic copy of a Tree Preservation Order (TPO) (ref: 01/1960), made by Barnet Urban District Council, which protects 44 individual trees. The trees subject to this TPO and relevant to the subject site are identified within the Tree Survey Schedule at **Appendix 1**.

1.5 CONSERVATION AREAS (CAs)

1.5.1 I have not been provided with any information relating to the presence of a designated conservation area, which would result in restrictions on the management of trees at the subject site. The London Borough of Barnet's website does not have an interactive map showing the location of conservation areas but lists and provides the associated documents for all conservation areas within the borough; assessment of these suggests that the site is not within a conservation area.

1.6 ANCIENT WOODLAND

1.6.1 There are no areas of ancient woodland within or immediately adjacent to the site. The latest Standing Advice produced by Natural England and Forestry Commission (14 January 2022) defines ancient woodland, that being any area that has been wooded continuously since at least 1600 AD, as 'an irreplaceable habitat' due to its importance to wildlife and soils, and its recreational, cultural, historical and landscape values.

1.7 WILDLIFE LEGISLATION

1.7.1 The Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017 provides statutory protection of birds, bats and other species that inhabit trees.

Section 41 of the Natural Environment and Rural Communities Act 2006 also places a duty on Local Planning Authorities to consider biodiversity when carrying out their duties.

1.7.2 Avoiding disturbance to those species can be ensured by considering the timing of tree works in order to prevent an offence under the above legislation. Where the presence of such species is suspected, the project ecologist or Natural England should be contacted for clarification and advice.

1.8 FELLING LICENCES

1.8.1 Tree felling is a restricted activity under the Forestry Act 1967. However, an exemption exists from the need for a felling licence for '*Felling trees immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990)*'.

1.8.2 Subject to approval of the planning application to which this report pertains, a felling licence to remove the trees identified for removal within this report, and shown on the appended TPP, will not be required.

2 PLANNING HISTORY

2.1.1 The site benefits from a recent planning consent (ref. 23/0373/HSE) which affords permission to install a new crossover from Barnet Gate Lane and associated driveway amendments. As part of this application, I produced an arboricultural impact assessment which is now listed as an approved document to which compliance-related planning conditions relate.

2.1.2 A prior planning application (ref. TPP/0312/21) to carry out various pruning elements to the coast redwood (T4 on appended MDJAC documents) and a western red cedar (T5 on all MDJAC documents) was approved in 2021. However to date, this pruning has not been implemented.

3 IMPACT ASSESSMENT METHODOLOGY

3.1.1 In order to systematically assess the overall impact of the scheme, I have devised a series of categories which seek to provide a summary of the likely, post-planning site conditions on the presumption that planning consent is gained, and the proposed scheme as detailed within this report is built out.

3.1.2 Our conclusions relating to the overall arboricultural impact of the scheme are summarised at **Table 1** below.

Impact category	Description
High	Total or extensive alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is significantly and adversely different.
Medium	Partial alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is partially different.
Low	Minor alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning changes will be distinguishable, but comparable to the existing context.
Negligible	No or very minor alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is not readily distinguishable from the existing context with no material adverse impact.

Table 1: MDJAC magnitudes of impact summary.

4 SITE ASSESSMENT

4.1 SITE VISIT AND TREE INSPECTION

4.1.1 I undertook a site inspection and tree survey on Wednesday 4 January 2023. Weather conditions at the time were overcast but dry and deciduous trees were not in leaf.

4.1.2 The dimensions and assessments of the trees contained within this document reflect their condition at the time of the survey. I surveyed the trees from within the boundaries of the site only. The presence of additional physiological or structural defects that are only visible from restricted-access viewpoints cannot be discounted. All trees were surveyed from ground level only, aided by the use of binoculars where considered necessary. Other aids included an acoustic hammer and a steel probe, both of which were used where necessary to confirm the extent of any dysfunctional wood, cavities or other morphological defects. The information contained within this document does not constitute a full hazard or risk assessment, and therefore MDJ Arboricultural Consultancy Limited makes no guarantee of their stability of safety.

4.1.3 I collected the baseline data using a handheld tablet, which was then exported to Microsoft Excel to produce the tree survey schedule at **Appendix 1**. The locations of the trees have been plotted using measurements taken on site. This information was exported to produce a Tree Constraints Plan (TCP), onto which the proposed layout has been overlaid to produce the Tree Protection Plan (TPP) at **Appendix 2**.

4.2 DESCRIPTION OF SITE

4.2.1 The site comprises a single detached dwelling with a detached garage and associated hard surfacing to the front garden area. Trees are present around the periphery of the site and make a significant contribution to the wider verdant landscape character.



Photograph 1: showing the presence of coniferous trees along the site's frontage, readily visible and which make a significant contribution to public amenity in views from Barnet Gate Lane.

4.3 EXISTING TREE STOCK

4.3.1 All trees have been categorised in accordance with the cascade chart at Table 1 of British Standard BS 5837:2012; justification for the categorisation is provided within the comments for each tree in the tree survey schedule at **Appendix 1**.

4.3.2 None of the surveyed trees have been assessed at category 'U'. These are trees that are unsuitable for retention irrespective of the proposed re-development, as they are in such poor condition and therefore have a remaining life expectancy of less than 10 years.

4.3.3 One coast redwood (T4) has been assessed as category 'A'. These are trees of high quality and an estimated life expectancy of more than 40 years and either particularly good examples of their species, rare or unusual specimens, essential components of groups, semi-formal or formal arboricultural features, or of particularly visual importance; or a combination of these.

4.3.4 A further eight individuals and one group of trees (G12), have been assessed as category 'B', being of moderate quality with a remaining life expectancy of at least 20 years. These include trees that have been downgraded from category 'A' due to impaired condition, including significant but

remediable defects such that they are unlikely to be suitable for retention for more than 40 years; those that are present in numbers, groups or woodlands and so attract a higher collective value; and those with material or other cultural value; or a combination of these.

4.3.5 The remaining trees have been assessed as category 'C', being of either low value with a remaining life expectancy of between 10 and 20 years; young trees with trunk diameters below 150mm; those growing in groups of trees without conferring any significance to the collective landscape; or those providing low or temporary landscape benefits.

4.4 PRINCIPAL ARBORICULTURAL FEATURES (PAFs)

4.4.1 The tree survey schedule at **Appendix 1** contains ten individual trees and three groups of trees. Of these, I consider the trees identified below to be the principal arboricultural features (PAFs):

Tree no.	TPO no.	Species	Contribution to landscape	BS5837 category
T1	T2 1/1960	Western red cedar	Front garden tree growing along south-western boundary. Readily visible and provides considerable amenity value in views from Barnet Gate Lane.	B (2)
T2	T3 1/1960	Western red cedar	Front garden tree growing along south-western boundary. Readily visible and provides considerable amenity value in views from Barnet Gate Lane.	B (2)
T3	T4 1/1960	Lawson cypress	Front garden tree growing along south-western boundary. Readily visible and provides considerable amenity value in views from Barnet Gate Lane.	B (2)
T4	T5 1/1960	Coast redwood	Front garden tree growing along south-western boundary. Readily visible and provides considerable amenity value in views from Barnet Gate Lane.	A (2)

Table 2: Principal Arboricultural Features (PAFs).

4.5 DESCRIPTION OF PROPOSALS

4.5.1 The proposals comprise the demolition of the existing property and its associated detached garage, and the construction of a pair of detached properties with private rear gardens, associated hard surfacing and landscaping.

5 ARBORICULTURAL IMPACT ASSESSMENT

5.1 TREES TO BE REMOVED

Details

5.1.1 The proposed development will require the entire removal of one group of trees (G11) and the partial removal of a roadside group of trees (G13) to facilitate the proposed crossover. The removal of a section of G13 was approved under planning application ref. 23/0373/HSE.



Photograph 2: showing the approximate location of the proposed vehicular crossover with the canopies of those to be removed highlighted in red.

Discussion

5.1.2 All of the category 'A' and 'B' trees are to be retained.

5.1.3 None of the trees to be removed are covered by a TPO.

5.1.4 The category 'C' trees to be removed are either of low value, have a limited life expectancy remaining, are young trees with trunk diameters below 150mm, grow in groups without conferring any significance to the local landscape, or provide only low or temporary landscape benefits. Consequently, their removal will not have a significant adverse impact on the quality or value of the surrounding arboricultural landscape and complies with local planning policies.

Conclusions

5.1.5 One group of trees (G11) will be removed entirely and one group of trees (G13) will be partially removed as part of the proposed re-development; the remaining trees will be retained and protected appropriately throughout the construction works. The partial removal of G13 has been approved under planning reference 23/0373/HSE. The principal arboricultural features of the site, set out at **Table 2**, will be retained. The removal of the trees identified as such will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in a significant, long-term or irreversible impact on the arboricultural character of the site.

5.2 TREES TO BE PRUNED

Details

5.2.1 Three trees require pruning as part of the proposed re-development of the site, as shown at **Table 3** below. Of these, the pruning to trees T3 and T4 were approved under application 23/0373/HSE, as highlighted below.

Tree no.	TPO no.	Species	Pruning specification	BS5837 Category
T3	T4 1/1960	Lawson cypress	Crown lift canopy to provide 4m clearance above proposed crossover and driveway.	B (2)
T4	T5 1/1960	Coast redwood	Crown lift canopy to provide 4m clearance above proposed crossover and driveway.	A (2)
T5	T6 1/1960	Western red cedar	Reduce canopy by up to 2m on west and south aspects.	B (1)

Table 3: proposed tree pruning. Highlighted items approved under planning ref. 23/0373/HSE.

Discussion

5.2.2 In order to provide sufficient clearance for vehicles beneath these canopies, it will be necessary to carry out low-impact crown lifting work, to prevent physical barriers posed by existing branches. These works are minor in extent and can be considered as routine works in the interest of sound arboricultural management.

5.2.3 Planning application ref. TPP/0312/21 afforded permission to carry out the following scope of works: '1x Coastal Redwood (applicant's ref. T4) – Reduce overextended lateral branches over neighbouring driveway by 2m approximately, Prune out broken branches (and major deadwood). T5 of Tree Preservation Order;, 1x Western Red Cedar (applicant's ref.T5) – Lift to clear conservatory vertically by around 4m, Prune off low lateral branches over conservatory steps (see photo 13 Appendix 1 in attached report), Lift to achieve 4m vertical clearance of conservatory by pruning branches no more than 70mm diameter, Prune off one number branch of around 13cm diameter on north east side (see photograph 12 – arrowed on report). T7 of Tree Preservation Order'.

5.2.4 The above permission was received by the property's previous owner prior to the current owners, Toast Developments Limited, acquiring the site. As such, ambiguity in the approved specification has resulted in the works not being implemented to date.

5.2.5 In any event, the western aspect of the canopy encroaches on to the existing property and routine arboricultural management works are required to maintain a harmonious relationship irrespective of the development proposals.



Photograph 3: showing a close up of the relationship between the T5's canopy and the existing property; and Photograph 4: showing the wider relationship between T5 and the existing property, and the extent of canopy lost through the proposed pruning.

5.2.6 Unlike many other coniferous species, Western red cedar is able to tolerate moderate pruning as it is able to regenerate new growth from pruning wounds. Consequently, the proposed pruning is unlikely to have any significant detrimental impact on the tree's physiological or structural conditions.

Conclusions

5.2.7 The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the trees identified above. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.

5.3 ROOT PROTECTION AREA (RPA) CONFLICTS

Details

5.3.1 The root protection areas of two trees identified for retention will be impacted by the proposals, as detailed at below.

Tree no.	TPO no.	Species	Cause of incursion	Indicative % of total RPA
T1	T2 1/1960	Western red cedar	- Proposed driveway	23%
T2	T3 1/1960	Western red cedar	- Proposed driveway	40%
T3	T4 1/1960	Lawson cypress	- Proposed driveway	17.1%
T4	T5 1/1960	Coast redwood	- Proposed driveway - Proposed foundations	18.3% 2.5%
T5	T6 1/1960	Western red cedar	- Proposed foundations	8.1%

Table 4: RPA conflicts, cause and percentage of total RPA affected.

Discussion

5.3.2 Section 5.3 of BS5837:2012 recommends that the default position of structures should be outside of the defined RPAs, and further recommends that justification for demolition or construction work abutting or within the RPAs should be provided if the default position cannot be accommodated. The successful retention and protection of retained trees is dependent upon several factors. I have therefore developed a systematic scoring system to aid in the calculation of cumulative impacts within the RPAs of retained trees, based on the following factors:

1. **Distance.** The distance of construction activities from the trunk of the tree;
2. **Biological characteristics.** Consideration of the subject tree's age class, physiology, vigour, and genetic tolerance of disturbance (Matheny & Clark, 1998);
3. **Extent of impact.** The extent of the RPA affected by construction activities, given as a percentage of the total area;
4. **Construction intensity.** Consideration of the likely depth and nature of any excavations; and
5. **Mitigation.** Consideration of existing root barriers and associated alterations to likely root morphology, and the availability or appropriateness of contiguous areas into which the construction impacts can be mitigated; or the application of improvements.

Tree no.	Species	Distance	Biological	Extent	Intensity	Mitigation	Total
T1	Western red cedar	2	3	2	4	2	13
T2	Western red cedar	2	3	1	4	2	12
T3	Lawson cypress	2	3	3	4	2	14
T4	Coast redwood	1	3	2	4	2	12
T5	Western red cedar	3	3	4	2	2	14

Table 5: cumulative-factor impact assessment.

Explanatory notes

- **Distance.** Work within the canopy merits 0-2 points; works within 2m of the canopy merits 3 points; works greater than 2m from the canopy merits 4 points.
- **Biological.** Veteran or over-mature trees, or trees in poor physiological condition merit 0-2 points; mature trees with good or fair physiological condition merit 3 points; other age classes with good or fair physiological condition merit 4 points.
- **Extent.** If more than 20% of the total RPA is affected, 0-2 points are awarded; if 10-20% of the total RPA is affected, 3 points are awarded; if less than 10% of the RPA is affected, 4 points is awarded.
- **Intensity.** Extensive excavation to depths beyond 1m from existing ground level or through the entire rooting profile merits 0-2 points; moderate excavation to 500mm, or approximately 50% of the rooting profile merits 3 points; minor excavation to less than 250mm or 'no-dig' solutions merit 4 points.
- **Mitigation.** If up to 50% of the RPA is unaffected and available for mitigatory works but no contiguous soft landscaping exists 0-2 points is awarded; if more than 50% of the RPA is available for improvement and contiguous soft landscaping exists 3 points are awarded; if 100% of the RPA is available for improvement and contiguous soft landscaping exists 4 points are awarded.
- **Total.** Trees cumulating less than 10 points are unlikely to be suitable for retention. Trees cumulating 11-20 points could be retained subject to appropriate protection measures.

5.3.3 The impacts identified at **Tables 4 and 5** above affect two individual trees, resulting in a maximum indicative incursion of 40% of individual RPAs. However, these impacts can be successfully mitigated in the following ways.

Replacement of existing hard surfaces

5.3.4 The incursion into the RPAs of the category 'A' and 'B' trees at the front of the property are caused by the formation of a crossover and replacement driveway surface. However, as the new surfacing follows the extent of existing areas of hard surfacing, identified as **purple honeycomb hatching** on the TPP, and the ground levels in these locations are relatively consistent, it should be feasible to construct the new surface without the need for significant excavation.

5.3.5 The underlying soil in these locations is likely to have been compacted in the past when the original surfacing was laid. Consequently, this should provide an adequate level on which to form the sub base of the new surface, omitting the requirement for significant excavation into the area occupied by the roots of these trees.

5.3.6 By ensuring that the new surface is founded no deeper than the existing sub base, and by incorporating any roots that are exposed during the removal of the existing surfacing, these incursions represent a negligible impact to the retained trees.

Approved earthworks

5.3.7 The existing ground levels remain consistent across much of the front garden area; however, there is a narrow depression extending along the south-western boundary of the site where levels fall from approximately 133.52 above ordnance datum (AOD) to 133.37 AOD, before rising back to 133.65 AOD adjacent to a manhole (telephone infrastructure) within the highway verge. Consequently, the depression represents a reduction of approximately 300mm in existing ground levels. This area is denoted by **light blue hatching** on the TPP.

5.3.8 In this location, it is proposed to 'fill' the depression using soil, thereby bridging this depression and enabling the proposed crossover to tie in with existing levels within the highway verge. With consideration to the possibility for additional sub base build up within the existing driveway footprint, the extent of fill in this location could rise to 500mm. However, as this narrow depression represents only 3.1% of the entire RPA for the coast redwood (T4), these localised earthworks are unlikely to result in any material adverse impact on the function of the wider root system as a whole.

Exploratory excavations

5.3.9 To ascertain the volume, size and depths of any significant roots, a series of trial excavations were undertaken; photographs of these are shown at **Appendix 3**. A summary of the findings is presented below.

5.3.10 'Test hole 1' was located on the southern flank of the existing detached garage, to a depth of circa. 800mm below ground level. This revealed the presence of a large root of circa 80mm diameter extending from south-east to north-west, along the existing foundation. This is suggestive of the significant foundation of the garage causing a physical barrier to root growth to the north, and so it is likely that the majority of the roots of the coast redwood (T4) follow a similar disposition.

5.3.11 To quantify this, a second hole ('test hole 2') was carried out on the north side of the garage, to a depth of approximately 900mm below existing ground levels. No significant rooting was observed within this hole, which adds weight to the above notion that root growth has been inhibited beneath the garage by its foundation.

5.3.12 The final hole ('test hole 3') was located on the south-eastern corner of the existing property, within the RPA of the western red cedar (T5). This revealed a significant foundation of reasonable quality, and the presence of fibrous rooting, as would be expected. However, no significant roots (those being defined as having a diameter of 25mm or more) were encountered.

Sensitive excavation

5.3.13 To prevent heavy machinery causing extensive damage to roots, excavation within the areas marked by **orange hatching** on the TPP, will be undertaken manually under the direct control and supervision of the arboricultural consultant. Where the consultant considers it feasible and necessary, excavation may be aided by the use of a compressed air soil pick or a suitably sized excavator fitted with a toothless bucket.

5.3.14 If roots with a diameter of less than 25mm are encountered they will be cut back to the face of the excavation using a handsaw, irrespective of the number and distribution of the roots, and they will be protected from direct sunlight by wrapping the exposed ends in hessian sacking; during periods of prolonged dry weather, the hessian sacking will be irrigated periodically to prevent the roots from drying out.

5.3.15 If roots in excess of 25mm diameter are encountered, the arboricultural consultant will consider the number, sizes, depths and condition of the roots, and whether their pruning is likely to lead to a significant adverse impact on the tree's ability to complete its biological processes. If it is deemed that the cutting of roots is likely to be tolerated by the trees, they will be cut back cleanly to the face of the excavation and protected as outlined above. Conversely, if the cutting of these roots is likely to lead to a decline in physiology, alternative solutions or foundation design will be discussed with the site manager and forwarded to the local planning authority for approval.

5.3.16 On completion of manual excavation, the arboricultural consultant will compile a brief supervision report summarising the findings, and this will be kept on file for future reference and forwarded to the relevant parties.

Tree Protection Fencing (TPF)

5.3.17 The rooting environments of trees identified for retention will be safeguarded by the erection of temporary tree protection fencing to the alternative specification provided in BS5837:2012 (The British Standards Institution, 2012) and set out below. These locations are denoted by bold red lines on the appended TPP.

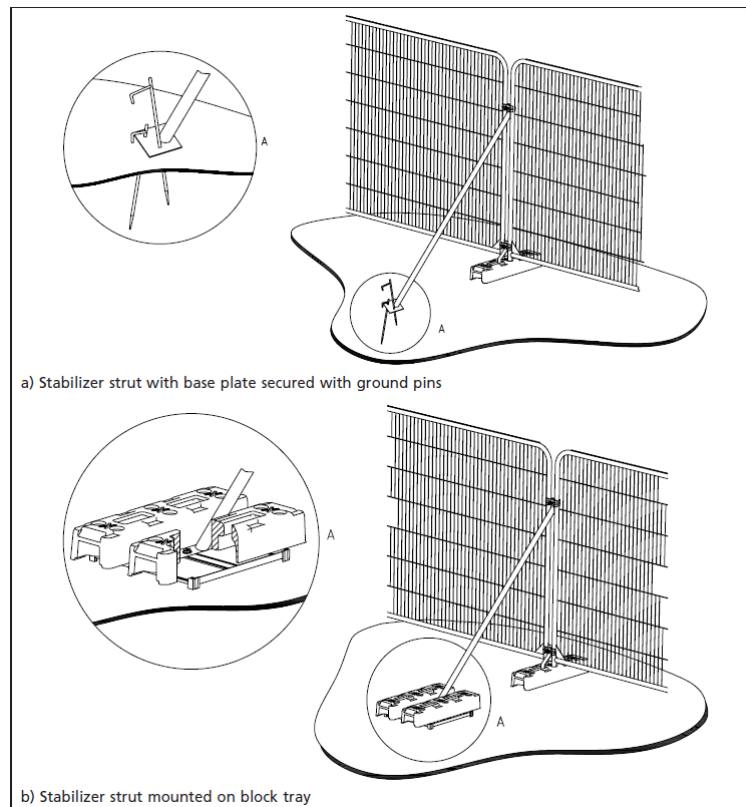


Figure 1: alternative fencing specification for protective barrier (The British Standards Institution, 2012).

5.3.18 The alternative specification comprises 2m tall, welded mesh panels such as 'heras' panels, set within rubber feet to avoid the need for excavation within the RPAs of retained trees. Individual panels will be joined together using a minimum of two anti-tamper couplers that can only be removed from within the construction exclusion zone. Stabilising struts secured to a base plate with road pins, or to a block tray where fencing is to be erected onto existing hard surfaces, will be incorporated between every other panel.

5.3.19 Existing vegetation will be removed by hand to enable the location of the TPF to be accurately set out by an appropriately qualified engineer.

5.3.20 The TPF will remain in place to serve as physical protection for retained trees for the duration of the demolition and construction activities and will only be removed immediately prior to the landscaping phase once all large plant and machinery have been removed from site.

5.3.21 Temporary signage will be secured to the fencing at appropriate intervals to inform site operatives of the purpose of the fencing. Signage will read 'TREE PROTECTION FENCING – KEEP OUT' or similar, as shown below.



Figure 2: example protective fencing signage.

Construction exclusion zones (CEZs)

5.3.22 Construction exclusion zones will be formed by the erection of the tree protection fencing to the specification set out above. Within the CEZs, the following principles will be observed for the duration of the project:

- No plant or machinery will access the CEZ
- No mechanical excavation will take place
- Unplanned excavations will be limited to hand-digging and will be considered by the project arboriculturist before commencement
- Existing soil levels will not be altered in any way, unless for the removal of existing turf layers, which will be undertaken using hand tools only
- No machinery or materials of any kind will be stored
- No liquids or chemicals including fuels, oils, builders' sand or concrete mix will be stored
- No fires will be permitted.

Conclusions

5.3.23 Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at **Appendix 2**.

5.4 FUTURE PRESSURE ON TREES

Details

5.4.1 The proposed properties will be located within the shadow patterns of retained trees, most notably that of the retained coast redwood (T4).

Discussion

5.4.2 Despite being located within the shadow patterns of retained trees, the overall juxtaposition of the new properties will be broadly similar to the existing context. Consequently, there is no reason to suggest that the construction of the proposed properties will result in a significant increase in TPO applications to repeatedly prune or remove these trees, particularly as facilitative pruning is proposed for the western red cedar (T5).

5.4.3 Additionally, the proposed properties have been designed with the shade cast by trees in mind, and consequently, they comprise dual fenestration and roof lights, particularly on the side closest to retained trees, in order to maximise natural light ingress. This is considered to be an improvement over the existing site context.

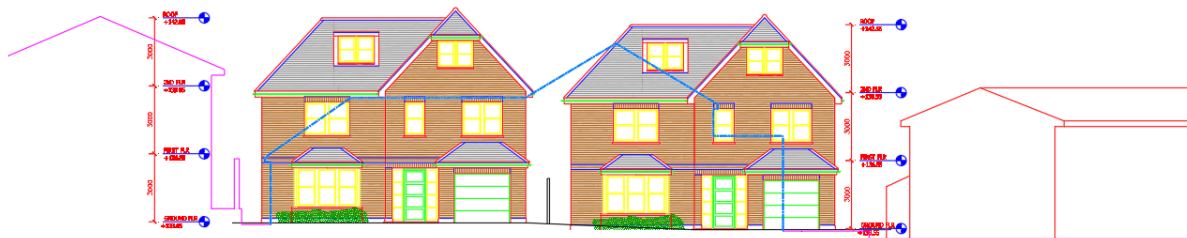


Figure 3: showing the proposed elevations with dual fenestration and roof lights where practicable.

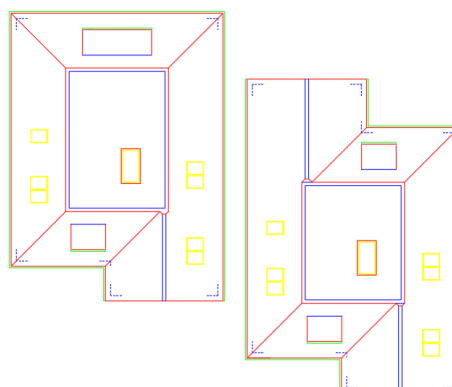


Figure 4: showing the roof plan with the location of proposed roof lights shown.

Conclusions

5.4.4 In light of the assessments set out above, there are no arboricultural reasons to suggest that the construction of the proposed properties will result in an unsustainable relationship with the retained tree stock, despite their proximity.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

6.1.1 One group of trees (G11) will be removed entirely and one group of trees (G13) will be partially removed as part of the proposed re-development; the remaining trees will be retained and protected appropriately throughout the construction works. The partial removal of G13 has been approved under planning reference 23/0373/HSE. The principal arboricultural features of the site, set out at **Table 2**, will be retained. The removal of the trees identified as such will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in a significant, long-term or irreversible impact on the arboricultural character of the site.

6.1.2 The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the trees identified above. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.

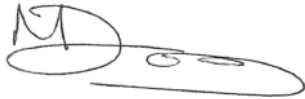
6.1.3 Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at **Appendix 2**.

6.1.4 In light of the assessments set out above, there are no arboricultural reasons to suggest that the construction of the proposed properties will result in an unsustainable relationship with the retained tree stock, despite their proximity.

6.1.5 Based on the above considerations, I conclude that the overall arboricultural impact of the proposals is negligible, as defined at **Table 1**.

6.2 RECOMMENDATIONS

1. Ensure that the protective measures prescribed within this report are either erected prior to commencement (protective fencing) or carried out in strict accordance with this document and the appended tree protection plan for specialist activities (replacement hard surfacing and sensitive excavation).



Matthew Jones, BSc (Hons), MArborA
Director & Arboriculturist

2 May 2023

7 REFERENCES

Matheny, N., & Clark, J. R. (1998). *Trees and Development: a technical guide to preservation of trees during land development*. Champaign, Illinois, USA: International Society of Arboriculture.

The British Standards Institution. (2012). British Standard BS5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. BSI Standards Limited.



APPENDIX 1: TREE SURVEY SCHEDULE

15 Windsor Close
Southwater
West Sussex
RH13 9XH

TREE SURVEY SCHEDULE

Site Address: Ashley Pines, Barnet Gate Lane, Barnet, EN5 2AA

Prepared For: Toast Developments Limited

Reference: MDJAC-22.158-TSS-01

Survey date: 04/01/2023

15 Windsor Close
Southwater
West Sussex
RH13 9XH

www.mdjac.co.uk | info@mdjac.co.uk

Company Registration No.
(England & Wales): 13900533

BS5837:2012 Tree Survey Schedule - Explanatory Notes

This document is based on a site visit and inspection undertaken by Matt Jones of MDJ Arboricultural Consultancy Ltd on 04/01/2023; deciduous trees were in not in leaf.

The dimensions and assessments of the trees contained within this document reflect their condition at the time of the survey. I surveyed the trees from within the boundaries of the site only. The presence of additional physiological or structural defects that are only visible from restricted-access viewpoints cannot be discounted.

All trees were surveyed from ground level only, aided by the use of binoculars where considered necessary. The information contained within this document does not constitute a full hazard or risk assessment, and therefore MDJ Arboricultural Consultancy Ltd makes no guarantee of their stability of safety.

1. Tree no.

Individual number assigned to the tree for identification, commencing at 1.

2. TPO no.

Number assigned to the tree in The Barnet Urban District Council (No. 1) Tree Preservation Order, as shown on the TPO document.

3. Species

Common and botanical names are provided. Botanical names are shown in italics.

4. Height

Measured using a clinometer or laser rangefinder, given in metres.

5. Trunk diameter

Trunk diameter measured at 1.5m, unless stated otherwise, in accordance with Figure C.1 of British Standard BS 5837:2012 "*Trees in relation to design, demolition and construction - Recommendations*".

6. Radial crown spread

Extent of branches from the centre of the trunk to the tips in the principal cardinal directions, rounded up to the closest half metre. For trees with symmetrical canopies, an average measurement is provided.

7. Crown clearance

Height above ground level of the lowest live branch, in metres.

8. Height to first branch

Height above ground level of the origin of the lowest branch, in metres.

9. Age class

Young: recently planted, or yet-to-be established specimen, usually below 10m in height, subject to species characteristics;
Semi-mature: a recently established specimen, usually with excurrent morphology, and yet-to-reach its ultimate proportions, subject to species characteristics;
Mature: fully established, complex, decurrent or broad branching structure, and has achieved or is nearing its ultimate proportions, subject to environmental conditions and species characteristics;
Over-mature: has reached maturity, but is showing symptoms of minor decline within its canopy;
Veteran: has a large trunk diameter for its species, but displays evidence of veteranisation such as fungal colonisation, decay, hollowing, and has commenced retrenchment within its canopy;
Ancient: exceeds the typical size and age of the species, with a very large trunk diameter; with extensive fungal colonisation, decay, hollowing and veteran characteristics; has undergone significant retrenchment and is within the latter stages of life.

10. Physiology

General health and biological function, taking into account a healthy specimen of its size, age, species and location.

11. Structure

Structural condition of the tree, based on root (visible portions only), basal, trunk, stem and branch morphology.

Good: No morphological defects and no fungal or bacterial colonisation;

Fair: only minor morphological defects and a very low likelihood of failure; no pathological colonisation;

Poor: irremediable and significant morphological defects, leading to an increased likelihood of failure.

12. Comments

Comments have been made where appropriate.

13. BS5837:2012 Category

Category assigned to the tree, based on its arboricultural quality, arboricultural landscape value and potential, in accordance with Table 1 of British Standard BS 5837:2012 "*Trees in relation to design, demolition and construction - Recommendations*".

14. RPA radius

Radius of the root protection area, based on the trunk diameter of the tree, in accordance with Section 4.6 of British Standard BS 5837:2012 "*Trees in relation to design, demolition and construction - Recommendations*".

Table 1: Cascade chart for tree quality assessment

Category and definition	Criteria			Identification on plan
Trees unsuitable for retention				
Category U 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 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 (e.g. 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			Red
Trees to be considered for retention				
	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly cultural values, including conservation	
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. 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	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	Trees with material conservation or other cultural value	Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

Client name: Toast Developments Ltd
 Site: Ashley Pines, Barnet Gate Lane, EN5 2AA
 Reference: MDJAC22.158-TSS-01
 Survey date: 04/01/2023

Tree Survey Schedule



No.	TPO no.	Common name	Height [m]	Trunk diameter [mm]	Radial Crown Spread [m]	Height to 1st Branch [m]	Crown Clearance [m]	Age class	Physiology	Structure	Comments	Category	RPA Radius [m]
T1	T2 1/1960	Western red cedar	12	750	N4.75m E4.75m S3.5m W6m	4	2.5	Mature	Good	Fair	Off-site tree. Tight compression fork at bifurcation with evidence of 'elephant ear' reactive wood formation. Twin-stemmed thereafter. Spreading canopy. Readily visible from Barnet Gate Lane. Of moderate quality and landscape value.	B (2)	9
T2	T3 1/1960	Western red cedar	12	540	N3.25m E3.5m S3m W3.5m	3.5	0.5	Early-mature	Good	Fair	Off-site tree. Lower canopy has been pruned in the past; significantly narrower than upper canopy. Readily visible from Barnet Gate Lane. Of moderate quality and landscape value.	B (2)	6.48
T3	T4 1/1960	Lawson cypress	12	460	N2.25m E2.25m S2.25m W2.25m	4	0.5	Mature	Fair	Fair	Severely contorted branches within canopy, most notably on E aspect where the lowest branch has partially failed. Readily visible from Barnet Gate Lane. Of moderate quality and landscape value.	B (2)	5.52
T4	T5 1/1960	Coast redwood	15	505 865	N4.25m E5m S4m W6m	3	1.5	Mature	Good	Fair	Twin-stemmed. Spreading canopy. Insignificant defects. Readily visible from Barnet Gate Lane. Of moderate quality but of high landscape value.	A (2)	12.02
T5	T6 1/1960	Western red cedar	16	775	N4m E5m S5m W5.5m	4	1	Mature	Good	Fair	Historical basal wounding, surrounded by dense reactive wood columns. No significant tonal changes heard when assessed with nylon mallet. Asymmetrical, spreading canopy. Upper canopy visible from Barnet Gate Lane. Of moderate quality and landscape value.	B (1)	9.3
T6	T7 1/1960	Western red cedar	15	720	N3.25m E4.5m S4.5m W4m	4	1	Mature	Good	Fair	Upper canopy appears to have been reduced in height historically. Asymmetrical canopy. Upper canopy visible from Barnet Gate Lane but is partially screened by other trees. Of moderate quality and landscape value.	B (1)	8.64
T7	T8 1/1960	Western red cedar	17	640	N5m E5m S5m W3.5m	4	1	Mature	Good	Fair	Basal decay with suggestions of fungal mycelium on buttress roots; audible tonal changes suggests underlying dysfunction. Upper notably sparser than lower canopy. Of moderate quality and landscape value but of reduced potential.	B (2)	7.68

Client name: Toast Developments Ltd
 Site: Ashley Pines, Barnet Gate Lane, EN5 2AA
 Reference: MDJAC22.158-TSS-01
 Survey date: 04/01/2023

Tree Survey Schedule

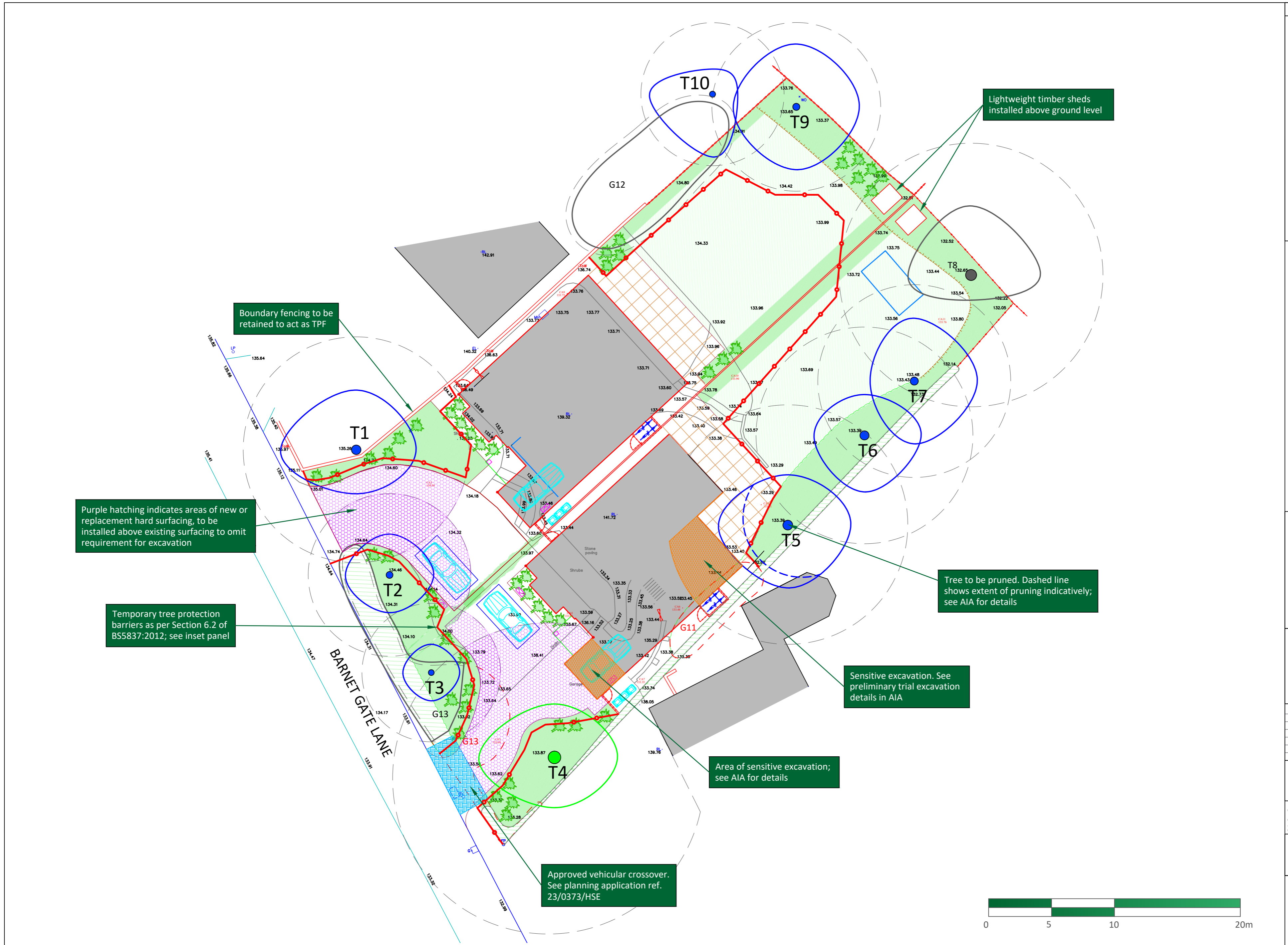


No.	TPO no.	Common name	Height [m]	Trunk diameter [mm]	Radial Crown Spread [m]	Height to 1st Branch [m]	Crown Clearance [m]	Age class	Physiology	Structure	Comments	Category	RPA Radius [m]
T8	T10 1/1960	Common beech	22	875	N5.5m E5.5m S2m W5m	9	9	Mature	Fair	Poor	Extensively degraded organic tissue, consistent with the fruiting bodies of <i>Meripilus giganteus</i> (Giant Polypore) noted at ground level on NW aspect. Tree originates from within the bank at end of garden. No evidence of tonal changes to adjacent buttress roots. Previous branch failure and associated decay at 2.5m on N aspect. Best removed; advanced assessment with diagnostic tools required to establish feasibility of retention.	C (2)	10.5
T9	T15 1/1960	Sycamore	20	560	N5m E5m S5m W5m	4	4	Mature	Fair	Fair	Leaning trunk. Of moderate quality and landscape value.	B (1)	6.72
T10	n/a	Sycamore	16	475	N2m E2m S5m W5m	4	4	Early-mature	Fair	Fair	Off-site tree. Lapsed pollard. Of moderate quality and landscape value.	B (2)	5.7
Groups of trees													
G11	n/a	Common holly	3-4	75 (est.)	See plan	0	0	Young	Good	Fair	Closely planted trees designed to form a screen. Of moderate quality but of low landscape value.	C (1)	See plan
G12	n/a	Lawson cypress, Common beech	14 (est. max.)	200-350 (est.)	See plan	1.5	1.5	Semi-mature	Fair	Fair	Off-site group of trees. Predominantly cypress. Of moderate quality and landscape value.	B (2)	See plan
G13	n/a	Various	3-9 (est.)	75-200 (est.)	See plan	0.25	0.25	Semi-mature	Fair	Fair	Primarily holly interspersed with hawthorn and Portuguese laurel. Of low-level screening benefit but of limited arboricultural or wider landscape significance.	C (12)	See plan



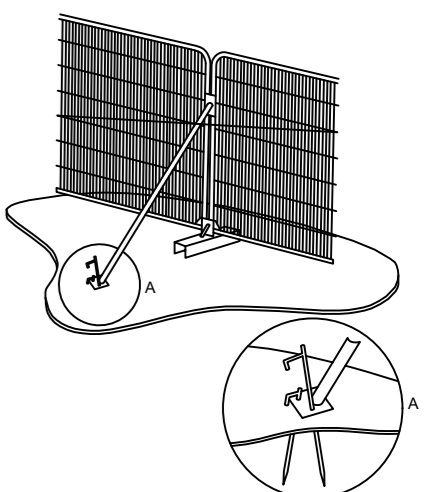
APPENDIX 2: TREE PROTECTION PLAN

15 Windsor Close
Southwater
West Sussex
RH13 9XH



Tree Protection Fencing (TPF)

The alternative specification comprises 2m tall, welded mesh panels such as 'heras' panels, set within rubber feet to avoid the need for excavation within the RPAs of retained trees. Individual panels will be joined together using a minimum of two anti-tamper couplers that can only be removed from within the construction exclusion zone. Stabilising struts secured to a base plate with road pins, or to a block tray where fencing is to be erected onto existing hard surfaces, will be incorporated between every other panel.



- Tree to be removed
- Category 'A' tree
- Category 'B' tree
- Category 'C' tree
- Category 'U' tree
- Root Protection Areas (RPAs)
- Tree Protection Fencing (TPF)
- Crossover location
- 'No-dig' hard surfacing
- 'No-dig' hard surfacing



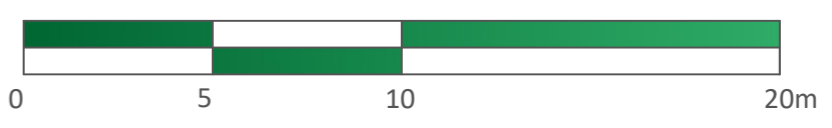
Document History

Rev	Date	Comments

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Site: Ashley Pines, Barnet Gate Lane, Barnet, EN5 2AA
 Client: Toast Developments Limited
 Title: Tree Protection Plan (TPP)
 Date: May 2023
 Dwg No: MDJAC-22.158-TPP-02
 Scale: 1:200 @ A2





APPENDIX 3: EXPLORATORY EXCAVATIONS

15 Windsor Close
Southwater
West Sussex
RH13 9XH

Test hole 1 – To the front of garage (roadside)



Test hole 1 – To the front of garage (roadside)



Test hole 2 – To the rear of garage



Test hole 2 – To the rear of garage



Test hole 3 – To the rear right of house



Test hole 3 – To the rear right of house

