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ARBORICULTURAL IMPACT ASSESSMENT REPORT
BS 5837:2012 'Trees in relation to design, demolition and construction. Recommendations'

report

SITE

26 Beech Hill, Hadley Wood EN4 0JP

CLIENT

GK Richards Properties Ltd

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Executive summary

This report is submitted in connection with a planning application for demolition of existing dwelling and rear swimming pool and the construction of two apartment buildings 5 and 4 flats respectively at 26 Beech Hill, Hadley Wood EN4 0J. I have provided all information in accordance with the British Standard (BS 5837: 2012 "*Trees in relation to design, demolition and construction. Recommendations*" (referred to as BS).

There are no Tree Preservation Orders affecting the site, and not in a Conservation Area.

The garden has a high tree population of low quality trees, including many large, oppressive conifers. A large oak tree is in the front garden which has been insensitively pruned resulting in a poor crown structure and heavy infestation of powdery mildew. A high quality mature oak is in the front garden of the adjacent property.

The scheme results in nearly all trees in the garden being removed, apart from two trees in the end rear of the garden. These two trees, and offsite trees will be protected by tree protection fencing and ground protection during demolition and construction. Sensitive working is required for new hard surfacing near an offsite oak T6. This will be subject to an Arboricultural Method Statement post planning and installed under arboricultural supervision.

There is scope for new tree planting in the front garden on the roadside frontage.

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1. Introduction:

- 1.1. This report accompanies a planning application to London Borough of Enfield for demolition of existing dwelling and rear swimming pool and the construction of two apartment buildings 5 and 4 flats respectively at 26 Beech Hill, Hadley Wood EN4 0JP . The work is in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction. Recommendations*' (referred to as BS).
- 1.2. This report details tree condition, the impact of the proposal on, and from, the existing trees and the measures taken to protect trees to be retained. It also includes tree surgery recommendations.
- 1.3. The survey has resulted in a layout as shown in the tree protection plan at Appendix 3. Where technical terms are used, explanations are found in the glossary.

2. Statement of instructions and the issues addressed:

- 2.1. I was instructed by Scott Sampson Architects on behalf of GK Richards Properties Ltd to:-
 - 2.1.1. Carry out a tree survey in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' (BS);
 - 2.1.2. Analyse the proposals and the impact on trees to be retained;
 - 2.1.3. Produce a tree protection plan, showing the location of the tree protection fencing in accordance with the BS and a specification for the protection of the existing trees;
 - 2.1.4. Provide a tree surgery schedule which includes work to facilitate construction, based on the layout of, and works to, trees due to their condition or previous management;
 - 2.1.5. Provide arboricultural method statements in as much detail as is practical at this stage.
- 2.2. The issues addressed are tree condition, and how the proposal impacts on the site and vice versa.

3. The site:

- 3.1. The site is 26 Beech Hill, Barnet EN4 0JN. It is accessed from Beech Hill to the north, with number 22/24 on the eastern side and 28 on the western side. There are clear views of Hadley Wood Golf Club to the south. The immediate neighbouring properties are more recently constructed than the property at 26 Beech Hill.

3.2. The plot is over 120m in length and approximately 28m wide. It has a high tree population of low quality trees which provide screening between properties. The site slopes down from the north at c.50m to the south at 47m.

3.3. *Site soils:* An assessment of soils on-site was carried out by a desktop analysis using the National Soil Resources Institute website which identified the soils as likely to be slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. This is a guide only and detailed on-site soil analysis should be undertaken by the project engineer to inform the foundation design.

4 The trees:

4.1. *Generally:* There are 58 individual trees, 9 groups and 1 hedge which form the subject of this survey. Full details are found in the survey sheets at appendix 1 and their location on the tree survey plan *SHA 1699 TSP* at appendix 2.

4.2. *Legislation:* There are no Tree Preservation orders (TPO) on site and not in a Conservation Area. Further information on legislation is found at appendix 7.

4.3. *BS retention category of trees in this survey, including offsite trees:*

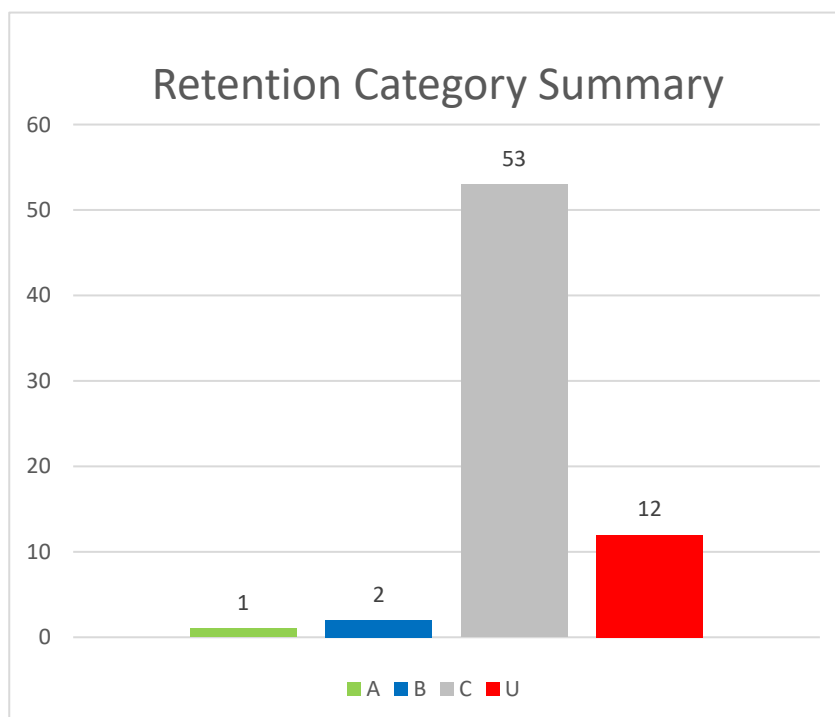


Table 3 – Retention category
A – high quality, B – moderate quality
C – low quality, U – unsuitable for retention

4.4. *Trees in the front garden:* The front garden vegetation is fairly unmanaged. Two mature cherry trees (T3-U and T4-U) have significant structural and physiological faults as detailed in the tree survey sheets at appendix 1. These trees are growing through a varied group of mixed shrubs (G12 – C). On the western boundary are a closely grown group of early mature conifers very close to the house and neighbouring property. Offsite, there is a mature high quality oak (T6 -A) with low quality semi-mature ash on the site side (T7 – T9 C). The prominent tree is a mature oak (T13-C) which has been heavily pruned resulting in poor form, powdery mildew (*Erysiphe alphitoides*) and sub-optimal crown architecture.



Photo 1 of T9 and G11 looking south-west

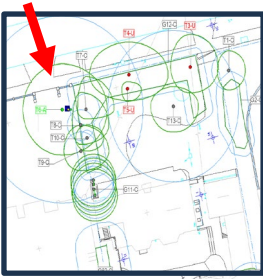


Photo 2 of T6 oak looking towards the neighbouring property

4.5. *Trees in the northern part of the rear garden:* The eastern boundary is dominated by a closely planted group of early mature/mature Leyland cypress at c.20m high (T16-C – T29-C). Many have been harshly pruned resulting in very little live foliage on the eastern side. They are rather oppressive creating dense shading. The northern 2 trees are very close to the neighbouring property.

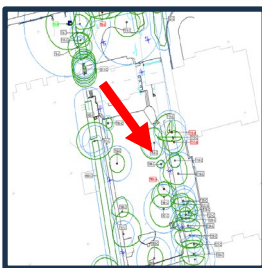


Photo 3 of the northern part of the eastern boundary in the rear garden



Photo 4 of the eastern boundary showing a section of the tall conifers.



Photo 5 of the north-western boundary of the rear garden

- 4.6. On the western side is a privet hedge (G50-C). Nearer the property, and number 28, is a dense line of 20m tall Leyland cypress (G62-C) which are closely planted and faced back. Between the privet hedge and cypress group is an early mature ash (T61-C) which has some crown dieback. The location of G62 is inappropriate so close to the properties. Between the boundaries are low quality evergreen trees.
- 4.7. *Trees in the southern part of the rear garden:* On the eastern boundary are more tall, oppressive Leyland cypress which are a continuation of the line to the north plus a semi-mature Atlantic cedar (T33-C). Further south, the garden is unmanaged and mostly open, with the exception of a thicket of blackthorn, a semi-mature hazel (T46-C) and semi-mature oak (T47-C) which is suppressed by the mature offsite sycamore to the west (T49-B).
- 4.8. On the western side is the privet hedge; fronted by low quality small apple trees (T51 & T54-C and T52-T53-U). A derelict swimming pool is screened by a line of 15m tall Leyland cypress (G36 & G37-C) which continue to enclose the southern part of the garden (G39 & G44-C).



Photo 6 of the low quality apple trees T51-T54 looking towards the privet hedge and conifers beyond. Looking north.



Photo 7 of the conifers G62

5. The Proposal

- 5.1. For demolition of existing dwelling and rear swimming pool and the construction of two apartment buildings 5 and 4 flats respectively.

6. Arboricultural impact assessment:

- 6.1. *Summary of the impact on trees:* Development can adversely impact on trees by causing them to be removed to facilitate the development, or in the future, by adversely affecting their potential for retention through disturbance in root protection areas (RPAs) or through post development pressure to prune or remove.
- 6.2. Tree roots can be asphyxiated and die if the rooting zone becomes compacted and soil structure damaged which can easily occur, particularly on clay soils, even with the passage of light vehicles. At the design stage, disturbance within the RPA should be avoided. If unavoidable (which may need demonstrating), consideration must be given to any construction activity such as demolition, including removal of existing hard surfaces, changing soil levels and the provision of services where within RPAs, as well as new surfaces and structures.

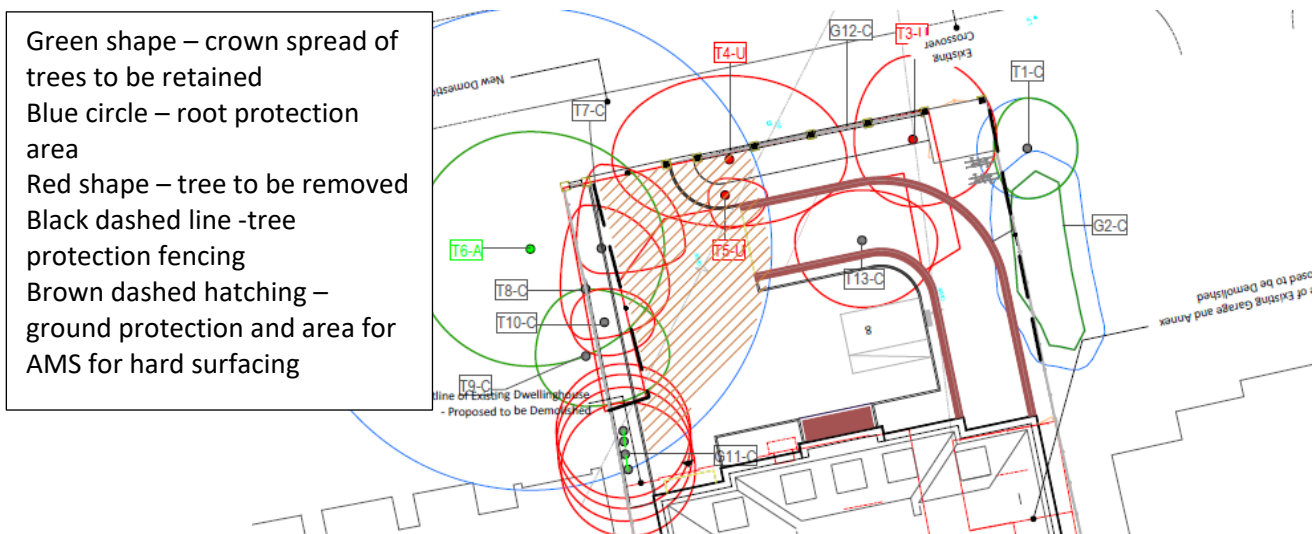
6.3. *Comments on specific trees and the arboricultural impact: Tree removal*

All on site trees, groups, hedges and shrubs will be removed except for T46 hazel (C) and T47 oak (C). H50 privet hedge on the western boundary of the rear garden may be able to be retained subject to further review post planning, but for the purposes of this report, it is shown removed. Details of tree work are found at appendix 4 in the tree surgery schedule.

6.4 *Tree protection measures* – Trees will be retained and protected during works by a combination of tree protection fencing and ground protection in accordance with the specification at appendix 5 at the locations shown on the tree protection plan SHA 1699 TPP at appendix 3.

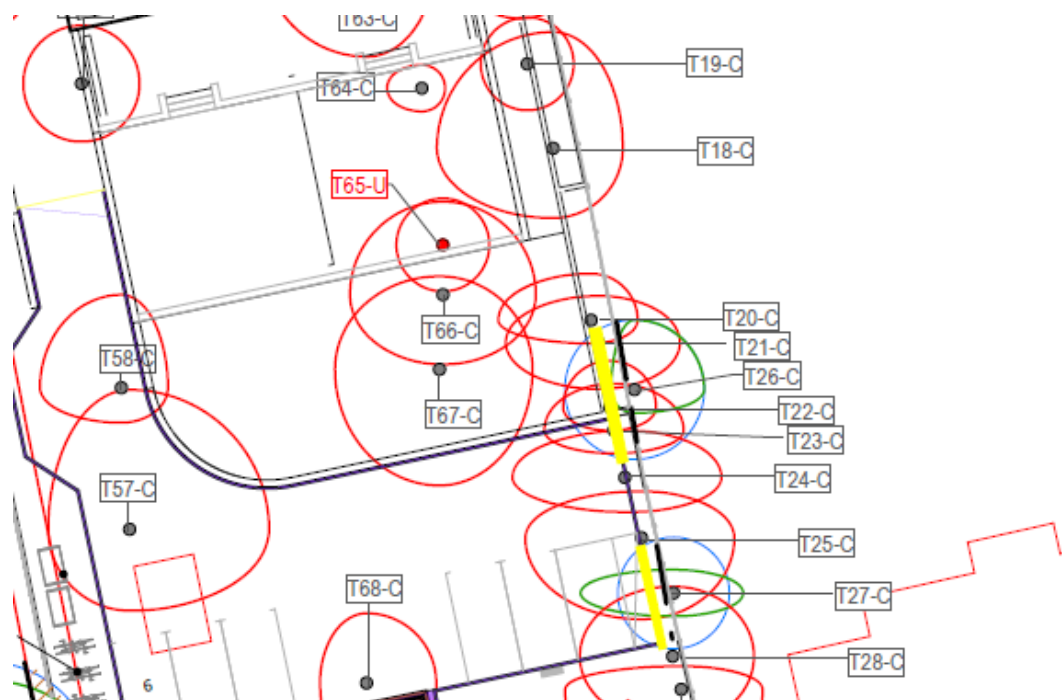
6.5 *Impact on the crowns* - The large oak offsite oak tree T6 will need to be very lightly crown lifted to ensure access under the crown on the site side. This is detailed at appendix 4 in the tree surgery schedule.

6.6 *Impact on the roots* –The root protection area of T6 is within the site and the proposed drive. During the demolition and construction phase the ground will be protected by robust ground mats/cellular confinement system to take heavy loads. Suitable products are found at appendix 5. There can be no excavation in this area, therefore any drainage and services must be outside the root protection area. The new hard surfacing in this area will be a minimal dig and porous construction and be carried out in accordance with an Arboricultural Method Statement (AMS) to be further refined post planning. A draft is found at appendix 6.



Plan 1 – extract from SHA 1699 TPP. Do not scale, north is vertical.

There are two semi-mature sycamores growing offsite close to the boundary (T26-C and T27-C). It is highly likely that the larger conifers will be restricting the actual rooting of these trees into the site and that they root preferentially east into the garden in which they are growing. There may need to be excavation in the area highlighted yellow, however, given the likely rooting pattern, this is highly unlikely to be an issue.



Plan 2 – extract from SHA 1699 TPP. Do not scale, north is vertical.

6.4. *Impact on visual amenity* -Whilst the trees to be removed are all low quality, they do provide screening (albeit oppressively in the case of the boundary conifers) and there will be a visual impact to the immediate neighbours and from Beech Hill. The scheme will be accompanied with a landscaping scheme which should show new tree planting of medium to large canopy trees on the road frontage. There is some scope for tree planting within the garden spaces.

7. Conclusions:

7.1. The scheme results in all trees in the garden being removed, apart from two trees in the end rear of the garden. These two trees, and offsite trees will be protected by tree protection fencing and ground protection during demolition and construction. Sensitive working is required for new hard surfacing near an offsite oak T6. This will be subject to an Arboricultural Method Statement post planning and installed under arboricultural supervision.

7.2. There is scope for new tree planting in the front garden on the roadside frontage. This should include medium or large canopy trees with a supporting root growth system under the proposed hard surface, such as rootcells by Green Blue Urban <https://greenblue.com/gb/solutions/soil-cells/>.

8. Recommendations:

- 8.1. That a copy of this report, and subsequent more detailed arboricultural method statement, is kept on site, including A1 colour copy of the tree protection plan. The arboricultural documents will be part of site induction by the main contractor to all sub-contractors.
- 8.2. That the arboricultural method statements are developed further in respect of drainage and hard surfacing near the offsite oak T6 and are observed by all site personnel and supervised at key stages by the project arboricultural consultant. Short supervision reports are to be written after each inspection as a record of compliance and audit trail to the Local Authority.
- 8.3. That the foundation design takes into account trees to be retained, trees to be removed and trees to be planted.
- 8.4. That there are no ground level changes with the area shown on the plan by tree protection fencing.
- 8.5. That the line of the underground services must be ideally located outside of Root Protection Areas of trees to be retained. The final service plan should be assessed by an arboriculturist. If it is unavoidable that services are to be located in RPAs, then a method statement must be produced. A meeting is to be held with the Civils team and the arboriculturist.
- 8.6. That the landscaping scheme includes a mix of trees from a cross section of species to ensure biosecurity against host specific pests and diseases. The trees must be planted and maintained in accordance with BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations*. The landscaping scheme should include enriched biochar around new planted and existing trees. Medium to large canopy trees are recommended on the road frontage.
- 8.7. That no tree works take place until consent is granted other than the removal of dead and broken precarious branches
- 8.8. That the tree protection fencing is installed before machinery enters the site and remains in place until the soft landscaping stage.

- 8.9. That consideration is given by a structural engineer on the possible impact on the foundations of the neighbouring properties of the removal of nearby coniferous trees. An understanding of neighbouring properties foundations and the site's soil type will be required.
- 8.10. That the drainage strategy detailing on and/or offsite drainage works, including SUDS, is reviewed by the arboricultural consultant to ensure minimum impact on trees to be retained and is mindful of new trees to be planted.

Sharon Durdant-Hollamby

FICFor FArborA BSc (Hons) Tech. Cert. (Arbor A)

Director

Sharon Hosegood Associates Ltd

Appendix 1

Tree survey sheets

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T1	<i>Chamaecyparis lawsoniana</i> (Golden Lawson Cypress)	EM	250	1	12(3)	25	3	3	3	2	Fair	20+	C2	3	28.28	Offsite tree. Reasonable form and condition. Stem data estimated as offsite. Ivy on tree. Unable to inspect stem due to Ivy. Dieback in crown. Small amount of twig sized dead wood interspersed in the crown. Light ivy growth. Observed behind fence.	Responsibility of owner.
G2	<i>Prunus laurocerasus</i> (Cherry Laurel)	EM	100	1	3(0)	8	1.5	1	1	1	Fair	20+	C2	1.2	4.52	Offsite tree. Reasonable form and condition. Plotted by eye as not on topo. Forms a dense screen. Dieback in crown. Major deadwood in crown. Informal offsite group. One metre overhang over fence.	
T3	<i>Prunus avium</i> (Wild Cherry)	M	400 200	2	8(2.5)	9	5	5	4	3.5	Poor	<10	U	5.36	90.27	Low vitality. Declining. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Stem divides at ground level. Dieback in crown. Low bud/leaf density. Broken branches in crown. Major deadwood in crown. Stems 600mm apart. Swamped with ivy. Ash sapling under tree on roadside. Southern stem almost completely dead.	Remove tree and root.

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T4	Prunus avium (Wild Cherry)	M	200 200 300 300 150	5	6(2)	8	5	7	4	7	Poor	<10	U	6.38	127.89	Poor shape & form. Low vitality. Declining. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Multiple stems below 1.5m. Dieback in crown. Low bud/leaf density. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. 30% vitality. Eastern stem almost horizontal. Heavy gummosis. Dense ivy to near top of crown. Overhead wires pass through Crown. Better vitality on roadside.	Remove tree and root.
T5	Sambucus nigra (Elder)	M	100 100 100 200	4	3(1)	8	1	2.5	2	1	Poor	<10	U	3.18	31.77	Poor shape & form. Low vitality. Declining. Plotted by eye as not on topo. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Decay present on stem. Multiple stems at ground level. Dieback in crown. Low bud/leaf density. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure.	Remove tree and root.

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T6	Quercus robur (Common Oak)	M	1,200	1	14(2.5)	18	7	8	7	7	Good	40+	A3	14.4	651.53	Tree located within hard surface area. Provides a high level of visual amenity. Prominent tree. Offsite tree. Stem data estimated as offsite. Pollard. Decay present on stem. Cavity on stem. Small amount of twig sized dead wood interspersed in the crown. Characterful old tree approaching veteran status. Observed from site side. Excellent vitality for age.	Responsibility of owner.
T7	Fraxinus excelsior (Ash)	SM	200	1	18(7)	22	5	5	1.5	1.5	Fair	20+	C1	2.4	18.1	Reasonable form and condition. Collective, rather than individual, visual amenity. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Unbalanced crown shape. Early Ash dieback disease.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T8	Fraxinus excelsior (Ash)	SM	200	1	18(7)	22	5	5	3	1.5	Fair	20+	C1	2.4	18.1	Reasonable form and condition. Collective, rather than individual, visual amenity. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Ivy on tree. Unable to inspect stem due to Ivy. Unbalanced crown shape. Early Ash dieback disease. Right next to fence. Dense ivy to upper crown.	
T9	Fraxinus excelsior (Ash)	SM	200 150	2	18(7)	22	4	5	3	3	Poor	<10	C2	3	28.28	Low vitality. Declining. Offsite tree. Stem data estimated as offsite. Collective, rather than individual, visual amenity. Stem divides below 1.5m. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Advanced ash dieback disease. Right next to fence.	Responsibility of owner.
T10	Chamaecyparis lawsoniana (Lawson Cypress)	SM	100	1	7(1)	25	2	3	2	2	Fair	20+	C2	1.2	4.52	Reasonable form and condition. Plotted by eye as not on topo. Unable to inspect stem due to undergrowth. Growing up through shrubby undergrowth.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
G11	X Cupressocyparis leylandii (Leyland Cypress)	EM	300	1	20(3)	28	4	4	4	4	Fair	20+	C2	3.6	40.72	Reasonable form and condition. Rooting area restrained by level change or structure. Forms a dense screen. Collective, rather than individual, visual amenity. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Ivy on tree. Unbalanced crown shape. Branches encroaching upon building. Average dimensions given. Growing very close to property and offsite property (which is at a higher level). Inappropriate location for species.	
G12	Prunus laurocerasus (Cherry Laurel), Ilex aquifolium (Holly), Viburnum tinus	SM	100	1	2.5(0)	8	1.5	1.5	1.5	1.5	Fair	10+	C2	1.2	4.52	Mixed group of varying quality and density. Choked with bramble. Large Philadelphus.	

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T13	Quercus robur (Common Oak)	M	970	1	18(4)	22	3	4.5	4	4	Fair	20+	C2	11.64	425.71	Ivy on tree. Unable to inspect stem due to Ivy. Epicormics on stem. Poor past pruning resulting in sub optimal crown architecture. Very heavily lopped leaving large wounds. Dense regrowth and reactive epicormic growth clothes tree. Powdery mildew (Erysiphe alphitoides). Small branch rests on overhead wires on Eastern side.	
T14	X Cupressocyparis leylandii (Leyland Cypress)	M	450	1	25(2.5)	28	4.5	2	3	5	Fair	20+	C2	5.4	91.62	Rooting area restrained by level change or structure. Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Poor past pruning resulting in sub optimal crown architecture. Log pile around tree preventing full inspection. Cut back harshly on Eastern side resulting in dieback.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T15	X Cupressocyparis leylandii (Leyland Cypress)	EM	400	1	20(2)	20	3	0	0	1.5	Poor	<10	U	4.8	72.39	Poor shape & form. Low vitality. Declining. Part of linear group. Major deadwood in crown. Poor past pruning resulting in sub optimal crown architecture. Very harshly pruned with very little live foliage. Log pile around tree.	Remove tree and root.
T16	X Cupressocyparis leylandii (Leyland Cypress)	EM	400	1	20(2)	20	0	3	1	5	Poor	10+	C2	4.8	72.39	Poor shape & form. Low vitality. Declining. Part of linear group. Major deadwood in crown. Poor past pruning resulting in sub optimal crown architecture. Very harshly pruned with very little live foliage on Eastern side. Very asymmetric. Low quality C. Log pile around tree.	
T17	X Cupressocyparis leylandii (Leyland Cypress)	M	450	1	15(2.5)	5	3	3	3	3	Dead	<10	U	5.4	91.62	Dead.	Remove tree and root.

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T18	X Cupressocyparis leylandii (Leyland Cypress)	M	500	1	25(2.5)	28	5	3	3	5	Fair	20+	C2	6	113.11	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly on Eastern side resulting in dieback.	
T19	X Cupressocyparis leylandii (Leyland Cypress)	Y	150	1	4(0)	28	2	2	2	2	Fair	20+	C2	1.8	10.18	Reasonable form and condition. Plotted by eye as not on topo. Unable to inspect stem due to undergrowth. In dense undergrowth.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T20	X Cupressocyparis leylandii (Leyland Cypress)	EM	350	1	20(4)	28	2	2	1	4	Fair	20+	C2	4.2	55.42	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly on Eastern side resulting in dieback. Topped at 8m.	
T21	X Cupressocyparis leylandii (Leyland Cypress)	EM	350	1	20(4)	28	2	3.5	2	4	Fair	20+	C2	4.2	55.42	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly on Eastern side resulting in dieback. Topped at 8m. Log pile around tree.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T22	X Cupressocyparis leylandii (Leyland Cypress)	EM	300	1	20(4)	28	2	2	1	2	Fair	20+	C2	3.6	40.72	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly on Eastern side resulting in dieback. Topped at 8m.	
T23	X Cupressocyparis leylandii (Leyland Cypress)	EM	300	1	20(4)	28	2	3	1	3	Fair	20+	C2	3.6	40.72	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly on Eastern side resulting in dieback. Topped at 8m.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T24	X Cupressocyparis leylandii (Leyland Cypress)	EM	500	1	20(4)	28	2	4	1.5	5	Fair	20+	C2	6	113.11	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly resulting in dieback. Topped at 8m. Log pile and compost around tree which could be rotting trunk.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T25	X Cupressocyparis leylandii (Leyland Cypress)	EM	500	1	20(4)	28	2	4	3.5	5	Fair	20+	C2	6	113.11	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Cut back harshly resulting in dieback. Topped at 8m. Log pile and compost around tree which could be rotting trunk.	
T26	Acer pseudoplatanus (Sycamore)	SM	250	1	15(4)	20	3	3	1	1	Fair	20+	C2	3	28.28	Poor shape & form. Offsite tree. Stem data estimated as offsite. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Unbalanced crown shape. Crown distorted due to group pressure. Close to fence. Very suppressed.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T27	Acer pseudoplatanus (Sycamore)	SM	200	1	15(4)	20	1	3	1	4	Fair	20+	C2	2.4	18.1	Poor shape & form. Offsite tree. Stem data estimated as offsite. Spindly. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Unbalanced crown shape. Crown distorted due to group pressure. Close to fence. Very suppressed.	
T28	X Cupressocyparis leylandii (Leyland Cypress)	EM	400	1	20(4)	28	3	3.5	3	4	Fair	20+	C2	4.8	72.39	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Compost around tree which could be rotting trunk.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T29	X Cupressocyparis leylandii (Leyland Cypress)	M	560	1	20(4)	28	1	3.5	6	5	Fair	20+	C2	6.72	141.89	Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Ivy on tree. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture.	
T30	X Cupressocyparis leylandii (Leyland Cypress)	Y	100	1	5(0)	5	2	2	2	2	Dead	<10	U	1.2	4.52	Nearly dead.	Remove tree and root.
T31	X Cupressocyparis leylandii (Leyland Cypress)	Y	100	1	5(0)	5	2	2	2	2	Dead	<10	U	1.2	4.52	Nearly dead.	Remove tree and root.
T32	X Cupressocyparis leylandii (Leyland Cypress)	Y	100	1	5(0)	5	1	1	1	1	Fair	10+	C2	1.2	4.52	Plotted by eye as not on topo. Insignificant tree with tight, columnar crown.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T33	<i>Cedrus libani atlantica</i> 'Glauca' (Atlantic Cedar)	SM	230	1	10(1.5)	20	2.5	3	3	3.5	Fair	20+	C2	2.76	23.93	Reasonable form and condition. Unbalanced crown shape. Crown distorted due to group pressure. Small amount of twig sized dead wood interspersed in the crown. Suppressed.	
T34	<i>Taxus baccata Fastigiata</i> (Yew)	Y	100	1	5(0)	5	2	1	0	1	Fair	10+	C2	1.2	4.52	Reasonable form and condition. Multiple stems at ground level. Unbalanced crown shape. Crown distorted due to group pressure. Insignificant tree with tight, columnar crown.	
T35	X <i>Cupressocyparis leylandii</i> (Leyland Cypress)	M	500	1	20(4)	28	3	3.5	5	4	Fair	20+	C2	6	113.11	Rooting area restrained by level change or structure. Forms a dense screen. Collective, rather than individual, visual amenity. Part of linear group. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. Crown distorted due to group pressure. Poor past pruning resulting in sub optimal crown architecture. Growing in corner of retaining feature. Very poor rooting environment for stability.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
G36	X Cupressocyparis leylandii (Leyland Cypress)	SM	200	1	15(0)	28	3	3	3	3	Fair	10+	C2	2.4	18.1	Rooting area restrained by level change or structure. Forms a dense screen. Dieback in crown.Southern line right next to retaining wall which is a poor rooting environment. Lower 2 to 3m of foliage is dead. Oppressive.	
G37	X Cupressocyparis leylandii (Leyland Cypress)	SM	200	1	15(0)	28	3	3	3	3	Fair	10+	C2	2.4	18.1	Rooting area restrained by level change or structure. Forms a dense screen. Dieback in crown.Southern line right next to retaining wall which is a poor rooting environment. Lower 2 to 3m of foliage is dead. Oppressive.	
T38	X Cupressocyparis leylandii (Leyland Cypress)	SM	220	1	10(1.5)	28	3	3	3	3	Fair	20+	C1	2.64	21.9	Reasonable form and condition. Rooting area restrained by level change or structure. Stem divides below 1.5m. Co dominant.Growing near edge of pool.	
G39	X Cupressocyparis leylandii (Leyland Cypress)	SM	200	1	15(0)	28	3	3	3	3	Fair	10+	C2	2.4	18.1	Rooting area restrained by level change or structure. Forms a dense screen. Dieback in crown.Lower 2 to 3m of foliage is dead. Oppressive.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T40	Malus (Apple)	M	400	1	4(1)	8	0	3	4	3	Fair	10+	U	4.8	72.39	Leaning South. Cavity on stem. Fruiting well. Tree has fallen over and is resting on ground then trunk grows vertically. Smaller side branches growing vertically.	
T41	Acer pseudoplatanus (Sycamore)	SM	200	1	10(2)	20	5	5	5	5	Good	40+	C1	2.4	18.1	Offsite tree. Reasonable form and condition. Plotted by eye as not on topo. Stem data estimated as offsite.	
T42	Sambucus nigra (Elder)	SM	100	2	4(2)	8	0	1	2.5	2	Fair	10+	C2	1.69	8.97	Reasonable form and condition. Plotted by eye as not on topo. Leaning North. Unable to inspect stem due to undergrowth. Unbalanced crown shape. Crown distorted due to group pressure. Small amount of twig sized dead wood interspersed in the crown.	
G43	Prunus spinosa (Blackthorn)	SM	100	1	4(0)	8	2	2	2	3.5	Fair	10+	C2	1.2	4.52	Reasonable form and condition. Forms a dense screen. Leaning West. Unable to inspect stem due to undergrowth. Thicket of thorn and bramble near boundary.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
G44	X Cupressocyparis leylandii (Leyland Cypress)	SM	200	1	15(0)	28	3	3	3	3	Poor	10+	C2	2.4	18.1	Rooting area restrained by level change or structure. Forms a dense screen. Dieback in crown. Low bud/leaf density. Broken branches in crown. Major deadwood in crown. Lower 2 to 3m of foliage is dead. Oppressive.	
T45	Prunus domestica insititia (Bullace)	EM	200	3	7(1)	8	3	5	6	4	Fair	<10	C2	4.15	54.11	Rooting area restrained by level change or structure. Multiple stems at ground level. Branches encroaching upon building. Growing right next to building.	
T46	Corylus avellana (Hazel)	SM	100	5	4(0)	10	2.5	2.5	2.5	2.5	Good	20+	C2	2.69	22.74	Reasonable form and condition. Plotted by eye as not on topo. Coppice. Right next to fence.	
T47	Quercus robur (Common Oak)	SM	170	1	8(1)	20	3	5	3	0	Good	40+	C2	2.04	13.08	Reasonable form and condition. Leaning East. Major bark wounding on stem. Unbalanced crown shape. Crown distorted due to group pressure. Small amount of twig sized dead wood interspersed in the crown. Scuff and decay at base. Powdery mildew (Erysiphe alphitoides).	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T48	Betula pendula (Silver Birch)	Y	100	1	5(1.5)	20	2.5	2.5	2.5	2.5	Fair	40+	C1	1.2	4.52	Offsite tree. Reasonable form and condition. Plotted by eye as not on topo. Stem data estimated as offsite. Close to fence.	
T49	Acer pseudoplatanus (Sycamore)	M	600	1	18(3)	20	4	5	4	4	Fair	20+	B2	7.2	162.88	Offsite tree. Reasonable form and condition. Plotted by eye as not on topo. Stem data estimated as offsite. Ivy on tree. Unable to inspect stem due to Ivy. Small amount of twig sized dead wood interspersed in the crown.	
H50	Ligustrum ovatifolium (Privet)	SM	100	1	3(0)	5	0.5	0.5	0.5	0.5	Fair	10+	C2	1.2	4.52	Reasonable form and condition. Forms a dense screen. Multiple stems at ground level. Outgrown boundary hedge. Mix of golden and green.	
T51	Malus (Apple)	EM	200 250	2	6(2)	8	2.5	2	1	1.5	Fair	10+	C2	3.84	46.33	Reasonable form and condition. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Stem divides below 1.5m. Has been heavily pruned at 4m with some decay at pruning points. No fruit.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T52	Malus (Apple)	EM	200 250	2	4(2)	8	1	2	2	0	Poor	<10	U	3.84	46.33	Low vitality. Declining. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Stem divides below 1.5m. Has been heavily pruned at 4m with some decay at pruning points. No fruit. Ion h n stem.	
T53	Malus (Apple)	EM	200 250	2	4(2)	8	1	2	2	0	Poor	<10	U	3.84	46.33	Low vitality. Declining. Part of linear group. Ivy on tree. Unable to inspect stem due to Ivy. Stem divides below 1.5m. Has been heavily pruned at 4m with some decay at pruning points. No fruit. Stem dead.	
T54	Malus (Apple)	EM	300	1	4(2)	8	2.5	3	3	1.5	Fair	10+	C2	3.6	40.72	Reasonable form and condition. Part of linear group. Ivy on tree. Multiple stems below 1.5m. Has been heavily pruned in the past with some decay at pruning points. No fruit.	
T55	Chamaecyparis lawsoniana (Lawson Cypress)	EM	350 100 150	3	8(1.5)	8	2	2	2	2	Poor	<10	U	4.73	70.3	Poor shape & form. Low vitality. Ivy on tree. Multiple stems at ground level. Dieback in crown. Low bud/leaf density. Broken branches in crown. Major deadwood in crown. Almost dead. Only live crown is to the south.	Remove tree and root.

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T56	Acer pseudoplatanus (Purple Sycamore)	M	400	1	18(3)	20	4	5	4	4	Fair	20+	B2	4.8	72.39	Offsite tree. Reasonable form and condition. Plotted by eye as not on topo. Stem data estimated as offsite. Small amount of twig sized dead wood interspersed in the crown.	
T57	Taxus baccata (Yew)	EM	300	1	8(1)	15	6	6	3.5	3.5	Fair	40+	C2	3.6	40.72	Reasonable form and condition. Multiple stems below 1.5m. Dieback in crown. Low bud/leaf density. Small amount of twig sized dead wood interspersed in the crown. Next to path.	
T58	Cupressus sps (cypress)	EM	300	1	2.5(1)	5	4	2	1.5	3.5	Fair	<10	C2	3.6	40.72	Poor shape & form. Squat. Heavily pruned and crown lifted. Old stubs.	
T59	Cupressus sps (cypress)	EM	400	1	7(1)	15	2.5	2.5	2.5	2.5	Fair	<10	C2	4.8	72.39	Poor shape & form. Leaning South-East. Heavily pruned and crown lifted. Old stubs. Has blown over in the past. Risk	
T60	Laurus nobilis (Bay)	SM	100	3	3.5(2)	9	1.5	1.5	1.5	0.5	Fair	10+	C1	2.08	13.59	Reasonable form and condition. Rooting area restrained by level change or structure. Suckers around stem base.	
T61	Fraxinus excelsior (Ash)	EM	350	1	20(3)	22	5	6	5	6	Fair	20+	C2	4.2	55.42	Unable to inspect stem due to undergrowth. Dieback in crown. Small amount of twig sized dead wood interspersed in the crown. Growing through hedge.	

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
G62	X Cupressocyparis leylandii (Leyland Cypress)	EM	300	1	20(3)	28	4	4	4	4	Fair	20+	C2	3.6	40.72	Reasonable form and condition. Rooting area restrained by level change or structure. Forms a dense screen. Collective, rather than individual, visual amenity. Growing very close to neighbouring tree resulting in unbalanced crown. Poor stem taper. Tall drawn up tree. Ivy on tree. Unbalanced crown shape. Branches encroaching upon building. Average dimensions given. Growing very close to property and offsite property (which is at a higher level). Inappropriate location for species.	
T63	Prunus cerasifera pissardii (Cherry Plum)	EM	300 100 100 100	4	8(2)	13	4	3	4.5	4.5	Good	40+	C2	4.15	54.11	Reasonable form and condition. Multiple stems at ground level. Crown distorted due to group pressure. Small amount of twig sized dead wood interspersed in the crown.	
T64	Pinus nigra (Austrian Pine)	Y	100	1	4(2)	25	1	1	1	1.5	Fair	20+	C1	1.2	4.52	Plotted by eye as not on topo. Small insignificant tree at current size.	
T65	Chamaecyparis lawsoniana (Lawson Cypress)	Y	100	1	7(1)	7	2	2	2	2	Dead	<10	U	1.2	4.52	Dead. Plotted by eye as not on topo.	Remove tree and root.

Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations
T66	Prunus lusitanica (variegated Portugal Laurel)	M	150 150 200	3	8(0.5)	8	4	4	3	4	Fair	<10	C2	3.5	38.49	Reasonable form and condition. Plotted by eye as not on topo. Ivy on tree. Multiple stems at ground level. Crown bias west and north.	
T67	Cupressus glabra (Smooth Arizona Cypress)	M	550	1	13(3)	18	4	4	5	4.5	Fair	40+	C2	6.6	136.87	Reasonable form and condition. Ivy on tree. Dieback in crown. Broken branches in crown. Major deadwood in crown. Hazardous snapped branch hanging in crown (reported to owner)	Urgently remove hanging branch.
T68	Chamaecyparis lawsoniana (Lawson Cypress)	SM	350 300 150	3	8(0.5)	15	3	3	3.5	2	Fair	20+	C2	5.82	106.43	Reasonable form and condition. Ivy on tree. Unable to inspect stem due to Ivy. Multiple stems at ground level. Diverging stems. Growing on the edge of steps.	

Explanation of the tree survey sheets

The tree survey has been carried out in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Below is an annotation of the abbreviations in the sheet and their meanings.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Tree Number	Botanical Name (Common name)	Age	Dia (mm)	Stems	Height (crown height)	Ult ht (m)	N	E	S	W	Cond	Life Exp	BS Cat	RPR (m)	RPA (m ²)	Comments	Recommendations

1 Tree

T - Tree, **G** - Group of trees, **H** - Hedge and **S** -shrub mass

2 Species - Botanical name and (Common name)

3 Age

NP – Newly planted, **Y** – Young - an establishing tree that could be easily transplanted

SM - Semi-mature - an established tree still to reach its ultimate height and spread with considerable growth potential.

EM – Early mature – a tree reaching its ultimate height and whose growth is slowing, however it will still increase considerably in stem diameter and crown spread.

M – Mature – a tree with limited potential for further significant increase in size, although likely to have a considerable safe useful life expectancy

OM – Over-mature – of an age where the mature size of the tree can no longer be maintained, and adaptive growth strategies such as 'retrenchment' (growing down) are commencing. These strategies should not be confused with senescence or a moribund condition, as a good life expectancy can remain.

V – Veteran/Ancient – either a tree older than typical for the species, or a tree showing signs of age, and of great ecological, cultural or aesthetic value.

4 Dia (mm)

Diameter of the stem in millimetres at 1.5m above ground level for single stemmed tree or in accordance with Annex C of BS 5837 for multi-stemmed trees or trees with low forks or irregular stems.

5 Stems

Number of stems. Multi-stemmed is m/s

6 Height (Crown height)

Height in metres from the ground to the top of the crown

(Crown height) – height of canopy above ground level

7 Ult ht (m)

Height in metres that could be reasonably expected for the species given its condition, past management and location.

8 NSEW

The crown spread from the trunk to the tips of the crown at the four cardinal points

9 Cond

Physiological condition. Good, fair, poor or dead

10 Life Exp

Estimated remaining contribution in years; <10, 10+, 20+ and 40+.

11 BS Cat

Category in accordance with Table 1 and section 4.5 of BS

U – unsuitable for retention. Existing condition is such that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years. Note, category U trees can have existing or potential conservation value which might be desirable to preserve.

A – high quality and value (non-fiscal) with at least 40 years remaining life expectancy

B – moderate quality and value with at least 40 years remaining life expectancy

C – low quality and value with at least 10 years remaining life expectancy, or young trees with a stem diameter below 150mm

A, B and C category trees are additionally graded into: 1 – mainly arboricultural values, 2 – mainly landscape values and 3 – mainly cultural values including conservation

12 RPR (m)

RPR – Root protection area radius (m)

13 RPA – Root protection area (m²)

14 Comments

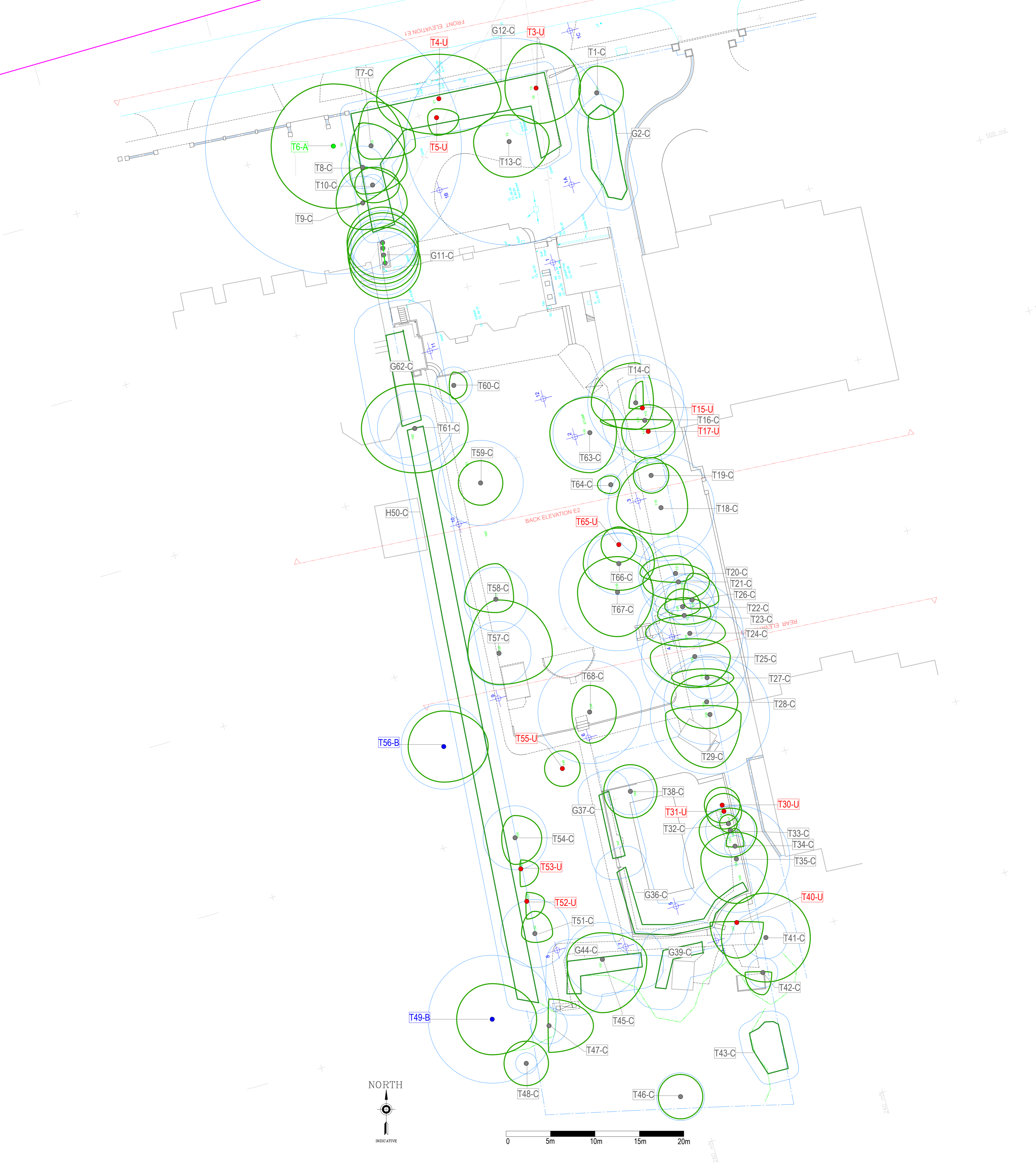
Detailed comments about the tree

15 Preliminary recommendations

Recommendations based on the tree's conditions and its current surroundings.

Appendix 2

Tree survey plan SHA 1699 TSP



- T1-A Category A - high quality and value
- T1-B Category B - moderate quality and value
- T1-C Category C - low quality and value
- T1-U Category U - unsuitable for retention

● Crown spread of trees

○ RPA - root protection area as defined by Table 2 BS 5837:2012

□ Group

○ Group

— Shading arc

Notes

1. Contractors to check all dimensions on site
2. Discrepancies must be reported to the Arboricultural Consultant before proceeding
3. The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
4. It is the responsibility of the contractor to ensure necessary consents for tree works are in place
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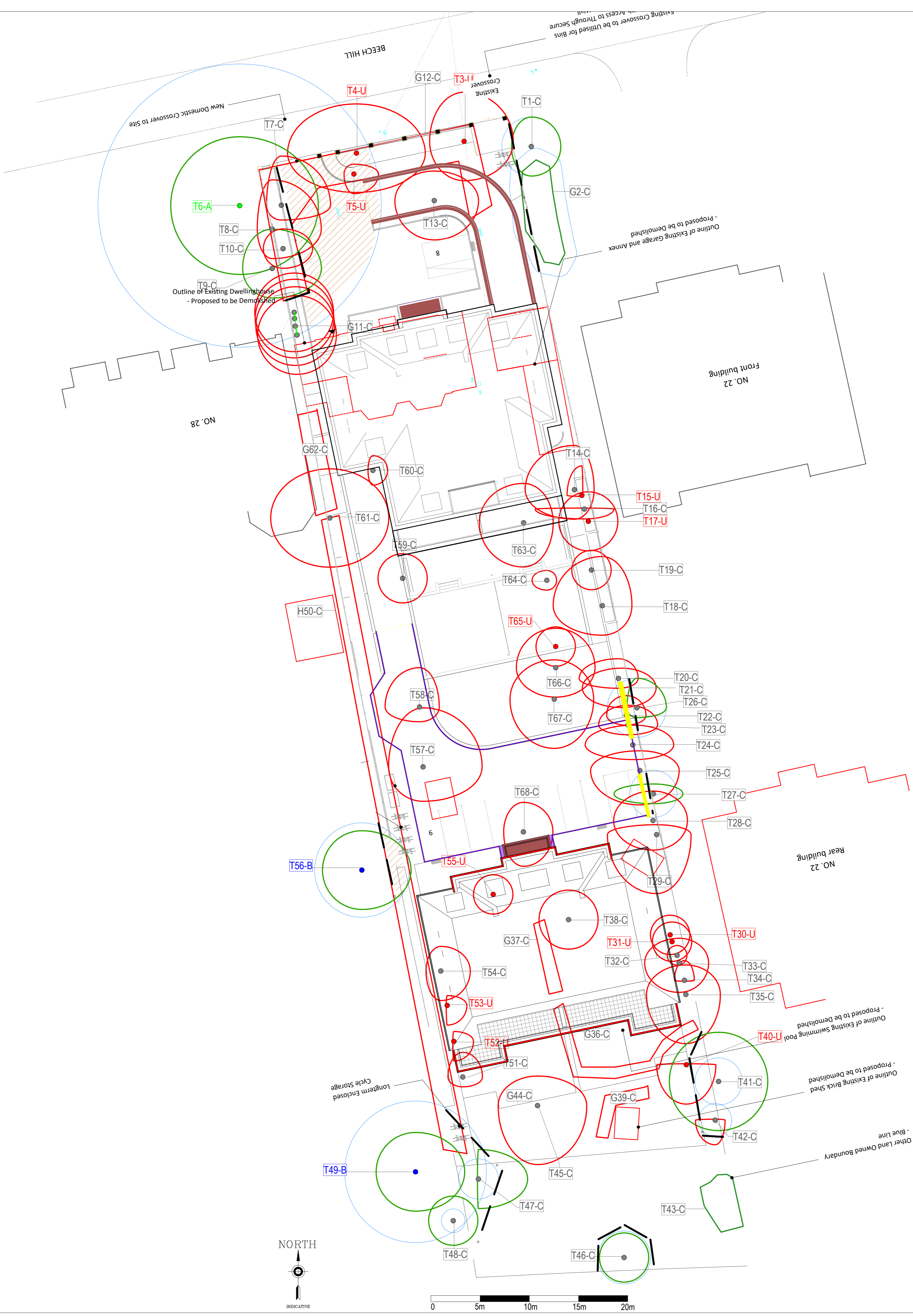
Client
GK Richards Properties Ltd

Site Address
26 Beech Hill, Hadley Wood

Drawing Title	Orientation	Drawn	Authorized
Tree Survey Plan	↑	ND-H	SMD-H
Date	Drawing Number	Scale	Drawing Status
23.8.23	SHA 1699 TSP	1:200@A1	For Issue
Revision			

Appendix 3

Tree protection plan SHA 1699 TPP



- T1-A Category A - high quality and value
- T1-B Category B - moderate quality and value
- T1-C Category C - low quality and value
- T1-U Category U - unsuitable for retention
- Trees to be retained
- RPA - root protection area as defined by Table 2 BS 5837:2012
- Group to be retained
- Group to be retained
- Trees to be removed
- Group to be removed
- Group to be removed
- Tree Protection Fencing comprising braced Heras panels

Ground protection during demolition and construction comprising ground mats - see report for details. No excavation in this area. New hard surfacing to be minimal dig and porous construction.

Theoretical root protection area of offsite trees which requires excavation along this line. These trees are unlikely to be rooting in the site due to the 'root barrier' effect of the much larger conifers to be removed.

- Notes**
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 4. It is the responsibility of the contractor to ensure necessary consents for tree works are in place
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Client
GK Richards Properties Ltd

Site Address
26 Beech Hill, Hadley Wood

Drawing Title	Orientation	Drawn	Authorized
Tree Protection Plan	↑	ND-H	SMD-H
Date	Drawing Number	Scale	Drawing Status
03.12.23	SHA 1699 TPP	1:200@A1	For Issue
Revision			

Appendix 4

Tree surgery schedule

Tree surgery schedule

All works to be carried out in accordance with BS 3998:2010 'Tree works – Recommendations'. All pruning cuts to be made at suitable growing points in the line with the principles of 'Natural target pruning'. An ecological check is required by a competent person prior to tree works being carried out and the ecological report referred to. Works should not take place until planning permission is granted and all pre-commencement conditions are discharged. This must be communicated to the tree surgeon and storage agreed with the demolition/main contractor.

Tree no.	BS category	Species	Proposed works	Reason
T3	U	Wild Cherry	Remove tree and root.	Very poor quality tree and to facilitate construction
T4	U	Wild Cherry	Remove tree and root.	Very poor quality tree and to facilitate construction
T5	U	Elder	Remove tree and root.	Very poor quality tree and to facilitate construction
T6	A3	Common Oak	Crown lift to achieve 5m over the site and remove any dead wood over the site	To ensure ease of passage under the tree for large demolition and construction vehicles
T7	C1	Ash	Remove tree and grind root.	To facilitate construction
T8	C1	Ash	Remove tree and grind root.	To facilitate construction
T10	C2	Lawson Cypress	Remove tree and grind root.	To facilitate construction
G11	C2	Leyland Cypress	Remove trees and grind roots.	To facilitate construction
G12	C2	Cherry Laurel, Holly, Viburnum Tinus	Remove shrubs and grind roots.	To facilitate construction

Tree no.	BS category	Species	Proposed works	Reason
T13	C2	Common Oak	Remove tree and roots.	To facilitate construction
T14	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T15	U	Leyland Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction
T16	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T17	U	Leyland Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction
T18	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T19	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T20	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T21	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T22	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T23	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T24	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction

Tree no.	BS category	Species	Proposed works	Reason
T25	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T26	C2	Sycamore	No works	n/a
T27	C2	Sycamore	No works	n/a
T28	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T29	C2	Leyland Cypress	Remove tree and roots.	To facilitate construction
T30	U	Leyland Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction
T31	U	Leyland Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction
T32	C2	Leyland Cypress	Remove tree and root.	To facilitate construction
T33	C2	Atlantic Cedar	Remove tree and root.	To facilitate construction
T34	C2	Yew	Remove tree and root.	To facilitate construction
T35	C2	Leyland Cypress	Remove tree and root.	To facilitate construction
G36	C2	Leyland Cypress	Remove tree and root.	To facilitate construction
G37	C2	Leyland Cypress	Remove tree and root.	To facilitate construction
T38	C1	Leyland Cypress	Remove tree and root.	To facilitate construction
G39	C2	Leyland Cypress	Remove tree and root.	To facilitate construction

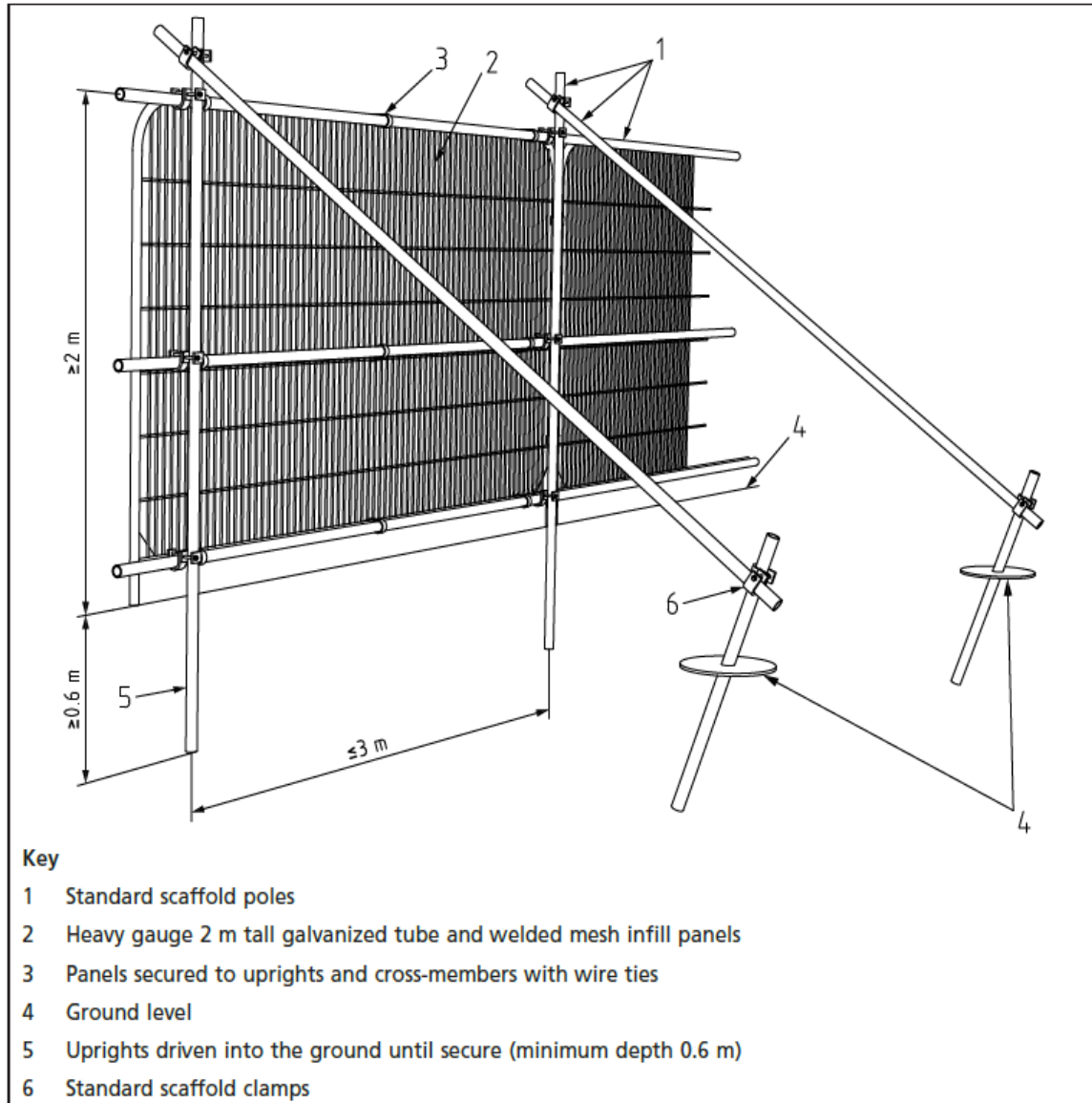
Tree no.	BS category	Species	Proposed works	Reason
T40	U	Apple	Remove tree and root.	Very poor quality tree and to facilitate construction
T41	C1	Sycamore	No works	n/a
T42	C2	Elder	Remove tree and root.	To facilitate construction
G43	C2	Blackthorn	No works	n/a
G44	C2	Leyland Cypress	Remove trees and roots.	To facilitate construction
T45	C2	Bullace	Remove tree and root.	To facilitate construction
T46	C2	Hazel	No works	n/a
T47	C2	Common Oak	No works	n/a
T48	C1	Silver Birch	No works	n/a
T49	B2	Sycamore	No works	n/a
H50	C2	Privet	Either face back towards site boundary or remove	To facilitate construction
T51	C2	Apple	Remove tree and root.	To facilitate construction
T52	U	Apple	Remove tree and root.	Very poor quality tree and to facilitate construction
T53	U	Apple	Remove tree and root.	Very poor quality tree and to facilitate construction
T54	C2	Apple	Remove tree and root.	To facilitate construction
T55	U	Lawson Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction

Tree no.	BS category	Species	Proposed works	Reason
T56	B2	Purple Sycamore	No works	n/a
T57	C2	Yew	Remove tree and root.	To facilitate construction
T58	C2	Conifer	Remove tree and root.	To facilitate construction
T59	C2	Conifer	Remove tree and root.	To facilitate construction
T60	C1	Bay	Remove tree and root.	To facilitate construction
T61	C2	Ash	Remove tree and root.	To facilitate construction
G62	C2	Leyland Cypress	Remove trees and roots.	To facilitate construction
T63	C2	Cherry Plum	Remove tree and root.	To facilitate construction
T64	C1	Austrian Pine	Remove tree and root.	To facilitate construction
T65	U	Lawson Cypress	Remove tree and root.	Very poor quality tree and to facilitate construction
T66	C2	Variegated Portugal Laurel	Remove tree and root.	To facilitate construction
T67	C2	Smooth Arizona Cypress	Remove tree and root.	To facilitate construction
T68	C2	Lawson Cypress	Remove tree and root.	To facilitate construction

Appendix 5

Tree protection specification

Figure 2 Default specification for protective barrier



Tree protection fencing specification from BS 5837:2012 Figure 2

Section 6.2.2 of BS.

Barriers should be fit for purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

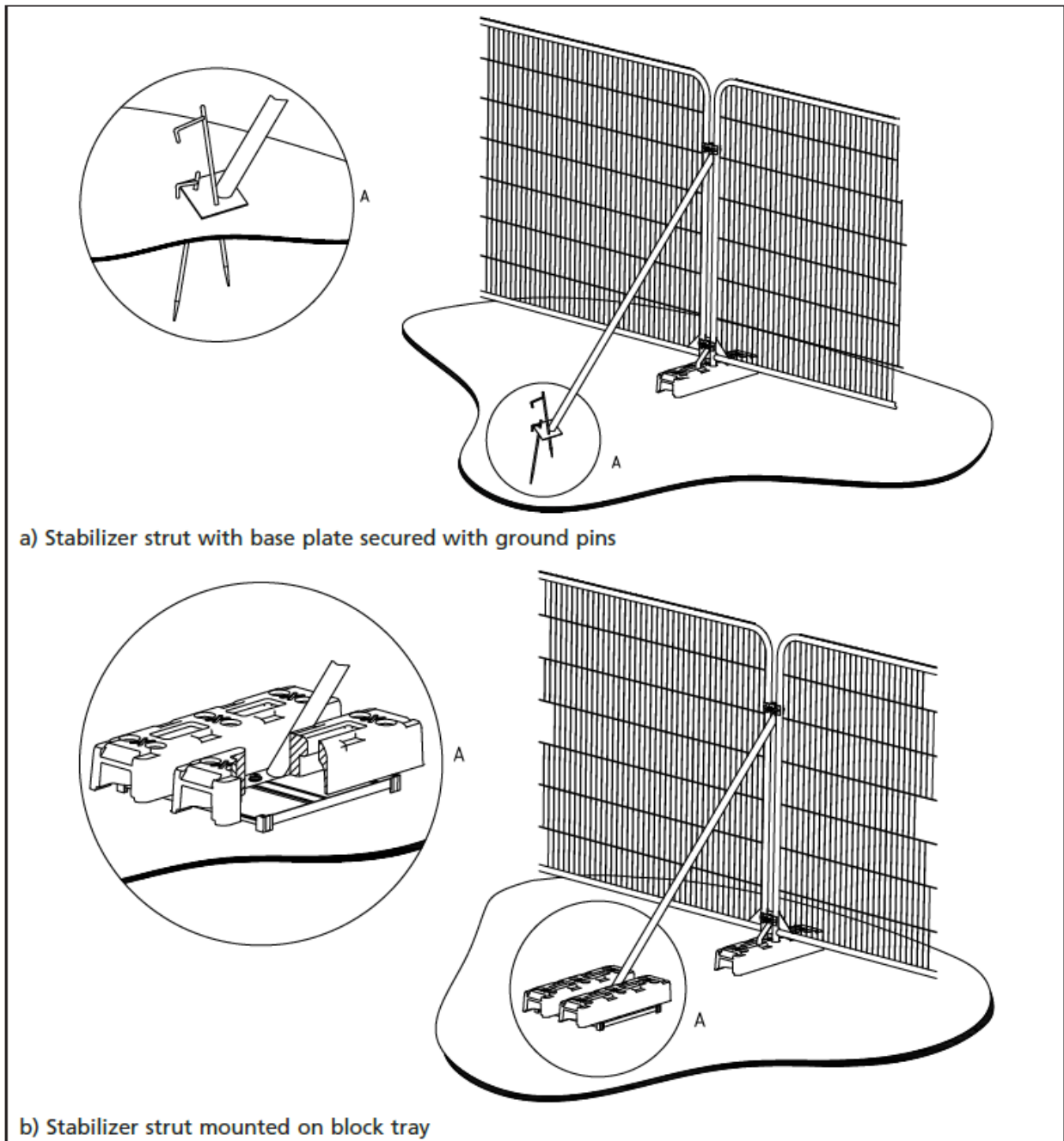
The default specification is shown above at Figure 2. Care should be taken when locating the vertical poles to avoid underground services and structural roots. Where it is not possible to drive a pole into the ground, for example on hard surfacing, figure 3 overleaf, applies.

The location for the tree protection fencing is shown on the tree protection plan delineated by a black dashed line. The location of the fencing is on the outer edge of the root protection area and the dimensions from fixed points are shown on the drawings. All weather signs should be affixed to the barriers, no more than 12m apart.

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



Suggested site warning sign format



Individual trunk protection for unique circumstances to be justified in this report**Ground protection during demolition and construction**

Where working space 'temporary access' is needed within the root protection area during works, fencing should be set back the minimum amount to achieve the required room. If there is existing hard surfacing in this area, it should remain during the works as ground protection. The suitability of this surfacing for ground protection, and whether it needs to be reinforced to bear the weight of machinery, should be assessed by an engineer and discussed with an arboriculturist.

Where the set back of the fencing exposes unmade ground, the ground must be protected before any works take place on site. This is to prevent root damage and soil compaction.

The ground protection might comprise of one of the following: (section 6.2.3.3 of BS)

- A) For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane;
- B) For pedestrian-operated plant up to a gross weight of 2 tonnes, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane;
- C) For wheeled or tracked construction traffic exceeding 2 tonnes gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected. An example of a cellular confinement system is found here <https://greenfix.co.uk/geoweb/geoweb-tree-root-protection.html>

The location for ground protection is shown on the tree protection plan by brown diagonal hatching, identified in the key.



SGN 3-02
Heavy-duty plywood set onto a compressible woodchip layer and pinned into position is suitable to spread the loading from pedestrian access.



SGN 3-05
A scaffold framework attached to the main scaffold fencing can be used to support either scaffold planks or plywood to create an elevated platform with a gap beneath.



SGN 3-06
Cellular products are a very effective means of providing ground protection where heavy vehicle use is expected. Here, it is being used to temporarily widen an existing road, to be removed once the construction is finished.

<https://www.barrelltreecare.co.uk/assets/Uploads/SGN-3-Ground-Protection-V3.pdf>

Appendix 6

Draft arboricultural method statement

1.0 Tree works:

1.1 Recommendations for tree works can be found in the tree surgery schedule in Appendix 4. All works shall be in accordance with BS 3998:2010 '*Tree work. Recommendations*'. The use of a competent and insured tree surgery contractor is necessary to comply with this. The main contractor and tree surgery contractor must ensure that any necessary consents have been received from the local authority and that no protected species are harmed whilst carrying out site clearance or tree surgery works. Within root protection areas, stumps, shrubs and other vegetation must be removed by hand or using stump grinding machinery to minimize root damage of retained trees. Where poisoning of stumps is specified, this must be carried out by competent operatives. Only chemicals approved for this purpose and used in accordance with the manufacturer's instructions will be used.

1.2 The following information must be sought:

- Current employers, public and product liability insurance
- Waste carriers' licence
- Qualification and experience of key personnel, including relevant NPTC certificates
- COSHH assessment
- Tool and task based risk assessment, including a Working at Height Risk Assessment
- Site specific risk assessment
- Emergency procedure plan
- Method Statement

1.3 A list of suitable tree surgeons is found at:

<http://www.trees.org.uk/find-a-professional/Directory-of-Tree-Surgeons>

Bio security measures are important and found at:

<https://www.forestry.gov.uk/biosecurity>

2.0 **Fires:** Fires on site should be avoided if possible. If unavoidable, they should be situated far enough so that there is no risk of damage to the trees, taking into consideration the wind direction.

3.0 **Site and fuel storage, cement mixing and washing points:** All site storage areas, cement mixing and washing points for equipment and vehicles and fuel storage areas should be outside root protection areas unless otherwise agreed with the Local Planning Authority. No discharge of potential contaminants should occur within 10m of a retained tree stem or where there is a risk of run off into Root Protection Areas.

4.0 **Temporary buildings for site use:** Site cabins, trailers and other temporary buildings can sometimes be used in root protection area if consent is agreed by the local planning authority. This can be very useful if there is a robust existing hard surfacing in place. The method for installing the buildings, and assessment of whether ground protection is needed is to be agreed with the Arboriculturist and specified prior to installation.

5.0 **Protection of tree canopies:** Piling rigs and cranes are often used close to trees. Work must be carefully planned so that there is sufficient room to avoid hitting the canopy during transportation or operation. Arboricultural supervision may be required, however, it is the responsibility of the contractor to assess and plan the work. Any access facilitation pruning required is detailed in the tree surgery schedule.

6.0 The following bespoke method statements will be developed further post planning:

The following are draft and detailed in the Arboricultural method statement post planning which will be developed with close team working.

7.0 **Demolition:**

- Carry out the internal and soft strip
- Pull back the building from top down and pulling back working from outside the root protection area where possible. Remove debris away from the root protection area.
- If this creates dust, and the trees are in leaf, hose down until dust is no longer visible.
- Hard surfacing near trees to be retained until the external works phase

8.0 Services and drainage: The final service plan will be reviewed by the arboriculturist to ensure that the principle of no new excavation in the root protection areas of trees to be retained is observed. If this is not possible, then this report will be updated and sent to xxx Council for approval and the principle of National Joint Utilities Council Volume 4 will be followed which is likely to require trenchless techniques. Any excavations within the root protection area will be observed by the arboricultural consultant.

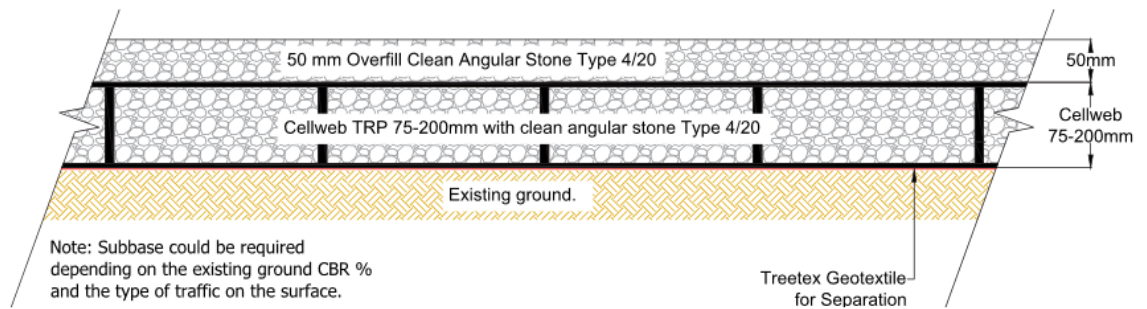
9.0 New hard surfacing near T6 oak:

The areas to which this apply are shown on the tree protection plan *SHA 559TPP A* at appendix 2 by brown cross hatch for the parking and access. The principle is that the roots will be unaffected by level changes and lack of opportunities for gaseous exchange and water infiltration. All hard surfacing within the site boundary adjacent to trees to be retained will be porous. The purpose of the method statement is to ensure that tree roots are retained and that they can function. Therefore, digging down, compacting the soil and creating an impermeable surface will be prevented. A method to spread and support the load of the hard surface and anticipated usage without causing compaction of the soil structure beneath will be used. The sub-base will be porous to enable gaseous exchange and water infiltration. A suitable material is washed angular stone with a diameter between 20 – 40mm with no fines. Aggregates or stones must have a near neutral PH. The surface material will be permeable paving. The exact specification of the hard surface is a matter for the engineer and architect, however the principles are as follows overleaf:

The following method applies under arboricultural supervision in the following order:

- Remove tree protection fencing
- Remove the turf and shrubs from the root protection area. The depth of the excavation will be determined by the arboriculturist, and gentle scraping by a spade will continue until the shallowest root with a diameter greater than 25mm, or a mat of fine fibrous tree roots, are encountered. A level threshold with the road is required, and this will require a slightly, localised, deeper excavation.
- Immediately after an even soil grading has been achieved, a geo textile membrane will be laid flat on the surface. The use of a geotextile membrane (such as Tree Tex T300) will help support the sub-base and be a partial filter (a last line of defense) for contaminants such as oil and road salt. This works by laterally diffusing the contaminants over a wider surface area so that the effect is minimized.

- Lay a cellular confinement system such as <http://www.geosyn.co.uk/product/cellweb-tree-root-protection> – cross section below. Install as per the manufacturers specification and to the engineers prescribed depth. Typically, this is likely to be 100 - 150mm deep. An installation method is found at <https://www.geosyn.co.uk/wp-content/uploads/2016/05/Installation-Guide-Cellweb-Installation-Guide-81-3.pdf>.



- This cellweb can then be used as a base for machinery to create the dropped kerb, crossover and for all machinery access during demolition and construction, as well as being a permanent subbase (subject to Civil Engineering assessment).
- A second geotextile layer to be added
- Porous tarmac to be laid in the normal way
- The edge treatment within the areas hatched blue will comprise treated timber laid on end pegged every 500mm with a wooden peg on the outside. The top of the peg will be flush with the top of the board. A small amount of topsoil will grade down from the top of the board to the soil to prevent a trip hazard.

10.0 New soft landscaping: Within the root protection areas of trees to be retained, the preparation of soil for planting and turfing will be carried out by hand. Cultivation will be kept to a minimum and new topsoil must not exceed 100mm in depth in the root protection areas, with no increase within 300mm of the stem. Top soil and other materials will be transported by wheelbarrow on running boards when working near trees. Enriched biochar to supplier's recommendations (typically 5% of soil volume) is advised to assist the establishment of new planting.

11.0 Arboricultural site supervision

An initial site meeting:

Before works have started, but after the tree surgery and tree protection measures are in place.

At this meeting the site manager, contractor, arboricultural consultant should discuss methodology and the tree protection measures will be examined. A '*What you need to know about working near trees at 26 Beech Hill, Hadley Wood EN4 OJP*' sheet will be issued which includes contact details.

After each site supervision, a short report will be sent to the contractor, client and local authority as a record of compliance within 5 working days.

Appendix 7

Tree related legislation and National Policy

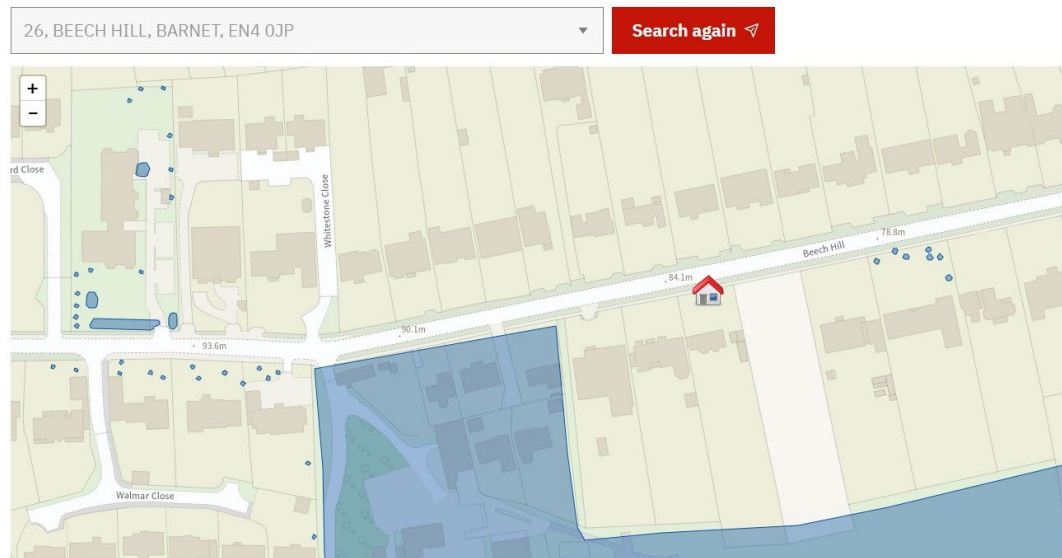
1. Tree preservation orders

The Town and Country Planning (Tree Preservation) (England) Regulations 2012.

No tree preservation orders affect the site.

2. Conservation Area

The site is not within in a Conservation Area



Plan 3 - Extract from the online mapping on Barnet Council. The property is shown by the house notation. The blue shading is the Conservation Area.

3. Ecological considerations

The Wildlife and Countryside Act 1981, as amended, The Conservation of Habitats and Species Regulations 2010 and the Countryside and Rights of Way Act 2000, provide statutory protection to species of flora and fauna including birds, bats and other species that are associated with trees.

4. Occupiers Liability Act 1957 and 1984

The Occupiers Liability Act (1957 and 1984) places a duty of care to ensure that no reasonably foreseeable harm takes place due to tree defects. Therefore, this report includes recommendations within the tree tables for work required for safety reasons. 'Common sense risk management of tree (National Tree Safety Group 2012)' states that *'The owner of the land on which a tree stands, together with any party who has control over the tree's management, owes a duty of care at Common Law to all people who might be injured by the tree. The duty of care is to take reasonable care to avoid acts or omissions that cause a reasonably foreseeable risk of injury to persons or property'*.

5. Common law

This enables pruning back to the boundary line providing the work is reasonable. Other restrictions, such as tree preservation orders/conservation areas still apply.

The owner of a tree is not obliged to trim their trees or hedges to prevent them from crossing over a boundary. Whilst the tree owner is not obliged to cut back the branches, the person whose property is overhung has the right to cut back the branches to the boundary providing there are no planning or legal restrictions on the trees such as Tree Protection Orders or if they are located in a church yard, in which case suitable consent must be obtained. Such pruning works must be undertaken to a suitable standard and must not cause damage to the tree.

The resulting debris remains the property of the tree owner, but you must not cause any damage to their property when returning it back to them and you do not have the right to trespass on the tree owner's property in carrying out the works. In the interests of good neighbourly relations, we would encourage neighbours to discuss their intentions with each other before carrying out such works, providing the work is reasonable and that the trees are not subject to TPO or Conservation Area protection.

6. Veteran Trees

"The term veteran tree is one that is not capable of precise definition but it encompasses trees defined by three guiding principles: trees of interest biologically, aesthetically or culturally because of their age; trees in the ancient stage of their life; trees that are old relative to others of the same species."*

There are no veteran trees on, or immediately adjacent to the site.

*(English Nature (200) Veteran Trees – A Guide to Good Management. [Online]. [Accessed 21st March 2019]. Available from: <http://publications.naturalengland.org.uk/publication/75035>)

National Policy

The National Planning Policy Framework September 2023

Habitats and biodiversity 179.

To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;
- b) and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

180. When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

The London Plan 2021

Policy G7 Trees and woodlands

- A London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.
- B In their Development Plans, boroughs should:
- 1) protect 'veteran' trees and ancient woodland where these are not already part of a protected site¹³⁹
 - 2) identify opportunities for tree planting in strategic locations.
- C Development proposals should ensure that, wherever possible, existing trees of value are retained.¹⁴⁰ If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

¹³⁹ Forestry Commission/Natural England (2018): Ancient woodland and veteran trees; protecting them from development, <https://www.gov.uk/guidance/planning-applications-affecting-trees-and-woodland>

¹⁴⁰ Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012

Barnet's Local Plan Development Plan Document

September 2012

Policy DM01 J and K (relevant extract)

- j.** Development proposals will be required to include hard and soft landscaping that:
 - i.** is well laid out in terms of access, car parking and landscaping
 - ii.** considers the impact of hardstandings on character
 - iii.** achieve a suitable visual setting for the building
 - iv.** provide an appropriate level of new habitat including tree and shrub planting
 - v.** make a positive contribution to the surrounding area
 - vi.** contributes to biodiversity including the retention of existing wildlife habitat and trees
 - vii.** adequately protects existing trees and their root systems.
- k.** Trees should be safeguarded. When protected trees are to be felled the council will require replanting with suitable size and species of tree where appropriate.

Appendix 8

Statement of methodology and reference material

Statement of methodology

Review of supplied plans and information

Site visit made by Sharon Durdant-Hollamby on 21st August 2023. Further site information received from client in November 2023 including new photographs used in this report.

Tree survey using Visual Tree Assessment carried out in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' (BS). All investigations were from ground level only and binoculars were used when necessary. All trees with a trunk diameter of 75mm or above were surveyed. Obvious hedges and shrub masses were identified where appropriate. Information collected is in accordance with recommendations in subsection 4.4.2.5 of BS and include species, height, diameter, branch spread, crown clearance, age class, physiological condition, structural condition and remaining contribution. Each tree was then allocated one of four categories (U, A, B or C).

Received material

1716_Beech Hill, 26 (05.07.2023)

23018 Beech Hill b&w

23018 Beech Hill colour, 1716_Beech Hill, 26_SK11 - Floor Plan - P0- Proposed Site - Landscape Plan

Reviewed text

BSI. BS 3998:2010 *Tree work-Recommendations*.

BSI. BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*

R.G.Strouts and T.G.Winter 'Diagnosis of ill-health in trees' TSO 1994

London Borough of Enfield website

C. Mattheck 'The body language of trees' 2015

Arboricultural Association Guidance Note 12 'The use of Cellular Confinement Systems Near Trees

Appendix 9

Caveats & Exclusions

Specific report caveats

1. At the time of writing this report, the protected tree status is correct. However, this can change. Therefore, I advise that a further check is made with London Borough of Enfield before any works to trees take place.
2. No internal diagnostic equipment was used other than a sounding mallet and probe and all inspections were from ground level only, with the aid of binoculars where necessary.
3. The survey is concerned solely with arboricultural issues.
4. Any changes in ground level, or excavations near to tree roots not discussed within this report may change the stability and condition of the trees and a further examination would be required.
5. As trees are a dynamic living organism this report is only valid for a period of 12 months, in respect to their health and condition.
6. Only the trees listed in this report have been examined.
7. The measure of offsite trees has been estimated, except any crown within the site overhang which is measured. Where the crown of an onsite tree overhangs the boundary, the crown spread in this direction is also estimated.
8. The base and trunk of the offsite trees could not be examined, and therefore a full assessment of the trees condition could not be made.
9. Dense ivy and undergrowth prevent a full condition survey being carried out. The vegetation may be hiding structural defects.
10. The tree information is from the time of the survey. Some pests, diseases and fungi only appear seasonally, therefore it is possible not all issues that may affect the health of the trees could be observed.

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Appendix 10

My experience and qualifications



Sharon Durdant-Hollamby

FICFor FArbor A BSc (Hons) Tech Cert Arbor A



Profile

Sharon is an Expert Witness, chartered arboriculturist and Director of Sharon Hosegood Associates Ltd. Sharon had eleven years' experience as a local government tree and landscape officer before joining a contractor as a tree consultant in 2005. In 2007 she formed an environmental practice in Essex with the owner. As managing director, she built up the ecological and arboricultural consultancy to a team of 20. She is a past President of the Institute of Chartered Foresters (May 2021 – April 2023). She joined Essex Quality Review Panel in May 2023 as an arboricultural expert.

Specialties: Trees in relation to development, including appeals and planning hearings

Tree root investigations, including TreeRadar

Tree hazard evaluation

Tree preservation orders

Trees and well-being with community engagement

Professional bodies: Immediate Past President of the Institute of Chartered Foresters
Fellow of the Institute of Chartered Foresters (ICF)
Fellow of the Arboricultural Association

Qualifications: Cardiff University Law School Bond Solon Civil Expert Certificate
Arboricultural Associations Technicians Certificate
BSc (Hons) Geography and Landscape Studies
Managing Safely IOSH (2017)

Awards: Top student award for the Technician's certificate in 2005

The Broomfield Hospital Woodland Management project she has managed between 2009 -2015 won the following awards:

The Essex Biodiversity Awards (nomination)

The Excellent Community Engagement Award (NHS Forest)

Green Flag and Green Apple Award

Highly commended for the Health Sector Journal Award 2013

Honorary College Fellow (Services to Arboriculture and Forestry) University Centre, Myerscough

Appendix 11

Glossary

Arboriculture	Formerly all aspects of the culture of trees, especially for forestry. Latterly, the art and science of cultivating and managing trees as groups and individuals, primarily for amenity and other non-forestry purpose.
Arboricultural method statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculturist	Person who has, through relevant education, training and experience in the field of trees in relation to construction.
Architecture	In a tree, a term describing the pattern of branching of the crown or root system.
Biochar	Biochar is charcoal used as a beneficial soil amendment enabling nutrient uptake and assisting the trees defense mechanism
Biodiversity	The variability among all living organisms of an ecological complex.
Biomechanical	Pertaining to the mechanical functions and properties of living organisms, such as trees.
Body language	In trees, the outward display of growth responses and/or deformation in response to mechanical stresses.
Branch	A limb extending from the main stem or parent branch of a tree.
Branch bark ridge	The raised arc of bark tissues that forms the acute angle between a branch and its parent stem
Branch collar	The swelling or roughened bark often found at the base of a branch which should be left intact if the branch is to be pruned off.
Canker	A lesion in which bark and cambium have been killed, sometimes exposing the wood and often showing a swollen appearance owing to the encircling growth of new tissues.
Canopy	The topmost layer of twigs and foliage in a tree.
Co-dominant	In trees, a similarity between two or more stems or branches with regard to their size and their position within the canopy.
Column	In the wood or phloem of a tree, an axially elongated zone of tissue that is distinguished from the surrounding tissue; e.g. Live versus dead or decayed versus non-decayed.
Construction exclusion zone	An area based on the root protection area from which access is prohibited for the duration of the project.
Crown	In arboriculture, the main foliage-bearing portion of a tree.
Crown lifting	The removal or shortening of the branches that form the lower part of the crown of a tree.
Crown reduction	Pruning in order to reduce the size of the crown of a tree.
Crown thinning	Pruning inside the crown of a tree in order to reduce its density.
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.
Dieback	The death of part of a plant, usually starting from a distal point and often progressing proximally in stages.
Direct damage	Direct physical damage to a structure of surface from pressure exerted by the trunk or growing roots.

Ecosystem services	The benefits that a particular species or range of species bestow upon others (including humans) through ecological relationships. Such services can sometimes be estimated in a form that allows them to be included in financial accounting.
Epicormic	Pertaining to shoots or roots which are initiated on mature woody stems; shoots can form in this way from dormant buds or they can be adventitious.
Failure	In connection with tree hazards, a partial or total fracture within woody tissues or loss of cohesion between roots and soil.
Flush cut	A pruning cut close to the parent stem which removes part of the branch bark ridge.
Foreseeable	In hazard assessment, pertaining to failure and associated injury of damage which are predictable on the basis of evidence from a tree and its surroundings.
Fungi	Organisms of several evolutionary origins, most of which are multicellular and grow as branched filamentous cells within dead organic matter or living organisms.
Hazard	A thing, a process or a potential event that has the potential to cause harm.
Heartwood	The dead or predominantly dead central wood of various tree species whose outer living wood, sapwood, has a finite and pre-determined lifespan.
Independent in the landscape	Point at which a newly planted tree is no longer reliant on excessive or abnormal management intervention in order to grow and flourish with realistic prospects of achieving its full potential contribute to the landscape.
Level arm	A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch.
Landscape character	A distinct, recognisably and consistent pattern of elements in the landscape that make one landscape different from another, rather than better or worse.
Mulch	Material laid down over the rooting area of a tree or other plant to help conserve moisture, suppress weeds and encourage a beneficial microflora.
Mycorrhizal	Pertaining to an intimate symbiotic association between plant roots and specialised fungi.
PICUS	The Picus Sonic Tomograph is a non-invasive tool for assessing decay in trees. It works on the principle that sound waves passing through decay move more slowly than sound waves traversing solid wood. By sending sound waves from a number of points around a tree stem to a number of receiving points, the relative speed of the sound can be calculated and a two-dimensional image of the cross-section of the tree can be generated
Pollard	A term for a pollarded tree
Pollarding	The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches; also, further cutting to maintaining this growth pattern.
Probability	A statistical measure of the chance that a particular event (e.g. a specific failure of a tree or specific kind of harm to persons or property) might occur.
Resistograph	

	<p>The IML-RESI system is based on the measurement of drilling resistance.</p> <p>The IML-RESI operates in a similar manner to a normal drill. A drilling needle with a diameter of 1.5mm is inserted into the wood under constant drive. While drilling, the resistance is measured as a function of the drilling depth of the needle. The data is printed and stored electronically at a scale of 1:1 simultaneously.</p> <p>Although invasive the relatively small needle diameter causes very little damage, testing is normally only undertaken to confirm the remaining stem wall thickness in decaying trees.</p>
Retrenchment	Progressive reduction in the size of the crown of an old tree, by means of the dieback or breakage of twigs and small branches, accompanied by the enhanced development of the lower or inner parts of the crown.
Risks	The likelihood of the potential harm from a particular hazard becoming actual harm.
Root protection area	A layout tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. BS 5837:2012 ' <i>Trees in relation to design, demolition and construction – Recommendations</i> '.
Root flare	Thickened and expanded base of a tree stem at ground level from which buttress roots form.
Rootplate	The central part of the root system of a tree, consisting of the large-diameter main roots and a dense mass of smaller roots and soil.
Service	In construction, any above-or below-ground structure or apparatus for utility provision.
SULE	Safe useful life expectancy of a tree (Barrell)
Stag-headed	In a tree, a state of dieback in which dead branches protrude beyond the current living crown.
Stress	In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example owing to lack of water, inadequate nutrition or extremes of temperature.
Stub cut	A pruning cut which is made at some length distal to the branch bark ridge.
Target pruning	The pruning of a twig or branch so that tissues recognisably belonging to the parent stem or branch are retained and not damaged.
Targets	In tree hazard assessment, persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it.
Tree Preservation Order	In Great Britain, an order made by a local authority, whereby the authority's consent is generally required for the cutting down, topping or lopping of specified trees.
Tree protection plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposal, showing trees for retention and illustrating the tree and landscape protection measures.
Utility	An undertaker by statute that has a legal right to provide customer services (e.g. communication, electricity, gas and water).

Veteran tree	<i>'A tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species'.</i> Ancient Tree Guide No. 4 (ATF, 2008).
Vigour	In tree assessment, an overall measure of the rate of shoot production, shoot extension or diameter growth.
Vitality	In tree assessment, an overall appraisal of physiological and biomechanical processes, in which high vitality equates with near-optimal function, in which high vitality equates with healthy function.
Visual Tree Assessment (VTA)	In addition to the literal meaning, a system expounded by Matteck and Breloer (1995) to aid the diagnosis of potential defects through visual signs and the application of mechanical criteria.
White-rot	Various kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded.
Wound	Injury caused to a tree by a physical force.



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ASSOCIATES

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

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CLIENT

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FICFor FArborA BSc (Hons) Tech Cert (ArborA)

DATE: December 2023
OUR REF: SHA 1699 AIA

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