Arboricultural Report

Maple Road, Hayes, Road, UB4 9NG

On Behalf of:

London Borough of Hillingdon

11th November 2022

www.ses-eco.co.uk

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Report Status	Arboricultural Impact Assessment Rev A – Movement of proposed north block
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Executive summary

1. This original report was submitted in connection with a planning application for development, comprising two blocks of flats which will create residential dwellings with associated gardens and amenities. The development will result in the loss of the existing buildings and associated hard standing, and some areas of scrub and grassland at Maple Road, Hayes, UB4 9NG. All information has been provided in accordance with the British Standard (BS 5837: 2012 '*Trees in relation to demolition, design and construction – recommendations*' (referred to as BS).

2. An updated survey was undertaken on 24th October by Gary Meadowcroft to establish what trees and shrubs remain on site. These are detailed on the tree protection plan.

3. Trees are proposed for removal with this development, however these are all low quality, early mature trees which can be easily replaced.

4. All retained trees will be adequately protected during demolition and construction works with protective fencing and or special methods of construction during the works.

5. The development provides a useful opportunity to enhance the quality and appearance of the landscape on the site through new planting.

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1.0 Introduction

1.1 This report accompanies a planning application made by on behalf of the London Borough of Hillingdon for development, comprising two blocks of flats which will create residential dwellings with associated gardens and amenities. The development will result in the loss of the existing buildings and associated hardstanding, and some areas of scrub and grassland, at Maple Road, Hayes, UB4 9NG.

1.2 This report details tree condition, the impact of the proposal on 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.

1.4 SES were instructed by the London Borough of Hillingdon to:-

- Carry out a tree survey in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' (BS);
- Analyse the proposals and the impact on trees to be retained;
- 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;
- 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;
- Provide arboricultural method statements in as much detail as is practical at this stage.

1.5 The issues addressed are tree condition and how the proposal impacts on the trees and vice versa.

2.0 The site

2.1 The site is in Yeading, in the eastern part of Hillingdon. There is an area of open space adjacent to the southern boundary which appears to be used by the public for recreation and comprises grassland, scrub and trees. Beyond a line of trees and scrub, the A312 runs along the eastern boundary. Residential areas lie to the north and west. The wider landscape is dominated by residential areas with associated roads, schools and public open space.

2.2 *Site soils:* An assessment of soils on-site was carried out by a desktop analysis using the National Soil Resources Institute website (http://www.landis.org.uk) which identified the soils as likely to be 'loamy soils with naturally high ground water'. This is a guide only and detailed on-site soil analysis should be undertaken by the project engineer to inform the foundation design.

Photo 1 – Aerial photograph (Google 2018) to show the site in its wider landscape setting. The site boundary is shown in red (approximately).

3.0 The trees

3.1 *Generally:* There are forty-six trees and twelve groups which form the subject of this survey. The trees are a mix of native ash (*Fraxinus excelsior*), field maple (*Acer campestre*), hornbeam (*Carpinus betulus*), cherry (*Prunus sp*), hawthorn (*Crataegus mongyna*) and willow (*Salix sp*), with some ornamental planting including a London plane (*Platanus x hispanica*) apple (*Malus sp*) and western red cedar (*Thuja plicata*). Full details are found in the survey sheets at Appendix 1 and their location on the tree survey plan at appendix 2.

3.2 *Legislation:* The site is not within a Conservation Area and the trees are not protected by a Tree Preservation Order.

3.3 *Retention category and statistics:*
The retention category to the BS chart is shown below. The trees are either semi-mature or early mature, with only a few mature specimens.

Chart 1. Retention category to BS 8537:2012

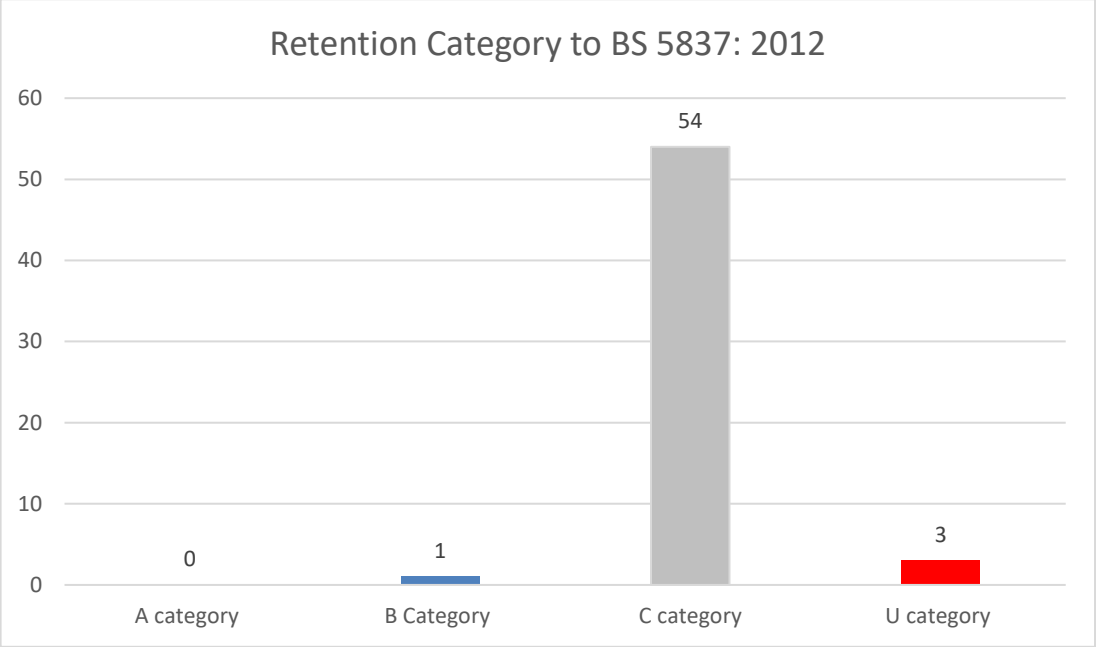


Table 1 – Retention category
A – high quality
B – moderate quality
C – low quality
U – unsuitable for retention

Chart 2. Trees Physiological Condition

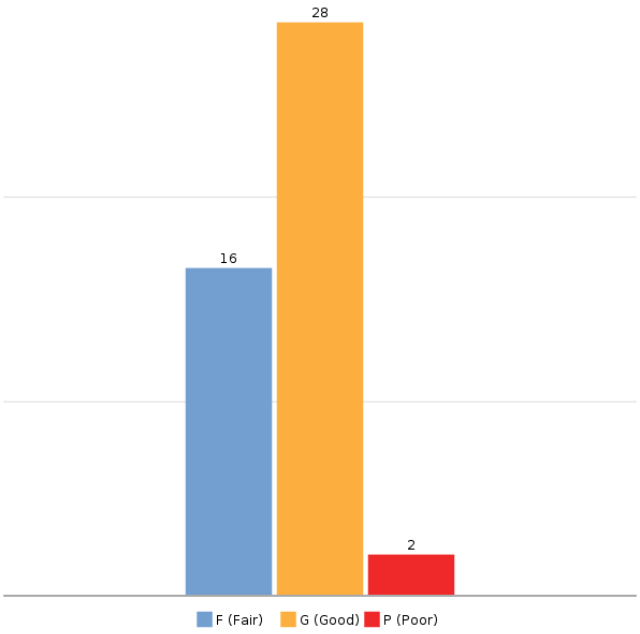


Chart 3. Trees Structural Condition

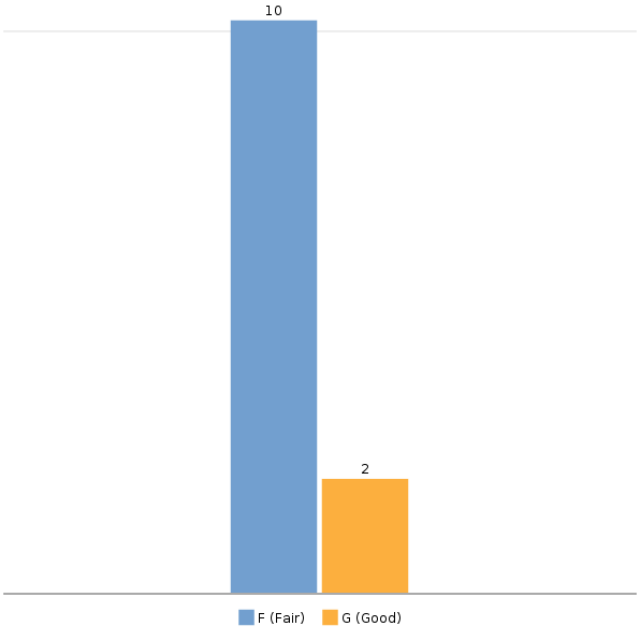


Chart 4. Tree Group Physiological Condition

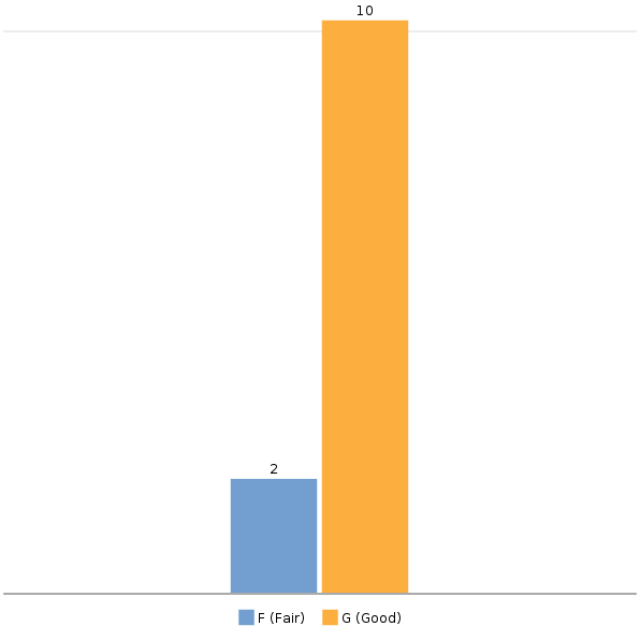
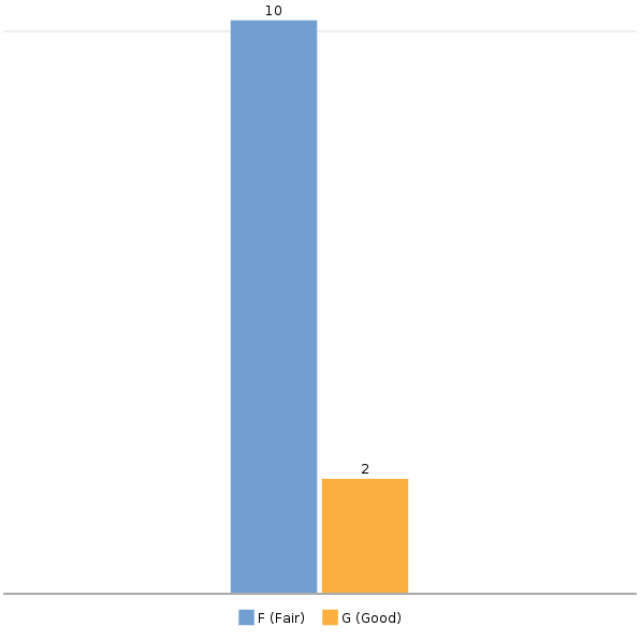


Chart 5. Tree Group Structural Condition



4.0 The Proposal

4.1 The proposal comprises two blocks of flats which will create 17 residential dwellings with associated gardens and amenities. The development will result in the loss of the existing buildings and associated hard standing and some areas of scrub and grassland, boundary trees will be retained, and areas of grassland created in the northern and southern sections behind the blocks of flats.

5.0 Arboricultural impact assessment

5.1 *Summary of the impact on trees*: Development can result in the removal of trees, 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.

5.2 Tree roots can be asphyxiated and die if the rooting zone becomes compacted and soil structure damaged. This 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 within RPAs, as well as new surfaces and structures.

5.3 At the planning stage, any works proposed with RPAs must be shown to be achievable with minimal impact on retained trees. Areas should be identified where a detailed Arboricultural Method Statement will be required post planning consent.

5.4 Construction of hard surfaces and other construction may be acceptable within RPAs providing specialist methods of design and construction are used. This can result in the use of minimal or no-dig methods which result in higher finished levels that must be allowed for during design, due to the effect on access thresholds and structure heights etc. The ability of trees to tolerate some disturbance depends on individual circumstances including prevailing site conditions, tree species, age and condition which will be assessed by the Arboriculturist.

5.5 Building lines, ideally, should be at least 2m outside of the RPA to allow for scaffolding and other build-ability issues and to allow for service runs and paths around the edge of buildings. Trees are long-lived organisms which take a long time to mature and if considered at an early stage can complement and increase the value of a development.

5.6 Many of the trees within the site around the boundaries will be removed within the proposal, either due to direct impact or future incompatibility. A full list of tree removals is included at Appendix 4 and indicated on the tree protection plan at Appendix 3. The majority of trees are in the early stages of establishment, and whilst they may continue to provide some amenity in the medium term, they could easily be replaced and should not be a constraint to developing the site, and are therefore assessed as low value trees. In addition, many of these trees have either been poorly pruned, or are suffering from substantial squirrel damage, and this is particularly prevalent on the field maples, which make up the majority of the tree species on the site.

T1-T3 cherry (*Prunus kanzan*) (Category C and U)

5.7 These trees are located just inside the site entrance; T2 is in poor condition.

Photo 2. Cherry trees (Prunus kanzan) T1-T3 looking west from within the site, larger off site Norway maple (Acer platanoides) trees T57-T58 in the background will be retained

Arboricultural impact assessment

5.8 T1-T3 will be removed within the proposal to allow for car parking to the south of the northern most block of flats.

T20-T27 (Category C trees), T49 and T50 (Category C trees in the foreground)

5.9 T20-T27 these trees are internal to the site, but existing in a row running west to east and close to the northern boundary. The rowan (*Sorbus aucuparia*) trees T49 and T50 are within a landscape bed between two existing car parking tarmac areas.

Photo 3. T20-T27 G22, looking north, with T49 and T50 in the foreground looking north

Arboricultural impact assessment

5.10 T20-T25 will need to be removed due to the incompatibility of the existing and future growth with the proposed northern block of flats. There are several dead elms (*Ulmus sp.*) within G22, a group of mixed trees and shrubs growing closer to the northern boundary fencing, and are recommended for removal. Appropriate better quality, new tree planting in this area would be feasible.

T33, T34, T35, G36 (Category C trees within the site eastern boundary)

5.11 T33 a fir (Abies sp.), T35 Norway maple (Acer platanoides) and G36 a group of shrubs and western red cedar are within the site; these are low value trees, sheltered from wider views by the landscape strip of trees along the Parkway.

Photo 4. T33, T34, G36 looking east

5.12 These trees are all to be removed to facilitate the car parking bays proposed in this location.

5.13 The proposed car parking bays within the eastern boundary landscape strip adjacent Parkway dual carriageway fall within an area that has not been surveyed as part of the topographical survey. However, T34 has been identified as a poor quality willow (*Salix fragilis*) tree which has significant deadwood and a crack in the main fork, and therefore should not be a constraint to this proposal. Impact on levels and other existing trees in this location can be reviewed in detail during detailed design and appropriate mitigation provided within an arboricultural method statement for the contractor.

G54 Southern boundary (Category C group of mixed native species)

5.14 This group of trees are again typical of the boundary character generally around the site, consisting of unmanaged native species, developing into young trees.

Photo 6. G54 southern boundary looking south from within the site

Arboricultural impact assessment

5.15 G54 group will be retained, and protected during development works, some crown management will be required in the future to ensure ongoing compatibility with the flats. As an existing feature, it is recommended that the group are formally managed as a tall hedge to integrate the development with the park to the south and protected by tree protection fencing during site works.

G55 – south west boundary (Category C group)

5.16 Early mature group of mixed trees and shrubs, an unmanaged hedge which has developed into small trees, maximum stem diameter 150mm.

Photo 7. G55 looking north

Arboricultural impact assessment

5.17 This group will need to be removed to facilitate the development. Although they provide some visual separation between the site and the adjacent land, they are not high value trees.

G19 – western boundary (Category C group)

5.18 This group of trees along the western boundary are again typical of the boundary character generally around the site, consisting of unmanaged native species, that are developing into small trees.

Photo 8. G19 and individual trees T5-T16 looking north west from within the site

Arboricultural impact assessment

5.19 G19 will be retained with the development proposal and will help to integrate the flats into the site within the wider residential area to the west, individual category C trees in the foreground will need to be removed to facilitate the proposal, and hazel stools (Corylus avellana) retained but coppiced. All the retained trees and shrubs here will be protected by tree protection fencing during site works.

T57 and T58 – off site trees western boundary (Category C trees)

5.20 T57 and T58 are off site trees that need to be retained. They are mature Norway maple trees (*Acer platanoides*), in fair structural and physiological condition, but have been poorly pruned historically, T58 in particular has an unbalanced crown.

Photo 9. T58 and T57 (left to right) looking east from the residential street

Arboricultural impact assessment

5.21 The proposed car parking will be within the RPAs of T58 and T57. To avoid root damage, the hard surfacing (and kerbs) will need to be constructed above existing soil levels and constructed using a permeable, three dimensional and load-bearing material to protect the roots of this tree. The impact on finished levels for this no-dig area will need to be considered when designing the finished levels for the rest of the road construction to ensure it all ties in together and no-dig will work. The area proposed for no-dig is identified on the tree protection plan at Appendix 3, and its specification and installation will need to follow an agreed method statement and be installed under arboricultural supervision. The crowns will be protected by tree protection fencing during works.

6.0 Conclusions

6.1 None of the surveyed trees on or adjacent to the site are assessed as being of good quality. Many are proposed for removal to facilitate the development, however boundary trees and groups are being retained where feasible and these will be adequately protected with the use of tree protection fencing and special methods of construction where identified as necessary.

6.2 All remaining trees will have room to grow without future pressure to prune or any other conflicts with the construction and future occupation.

6.3 The roots of T57 and T58 can be protected during construction of the car parking bays by adopting a no-dig construction method for hard surfacing, this approach ensures the retention of existing soil levels, and tree roots, whilst providing a useable hard surface for traffic and pedestrian use. The details for no-dig construction can be worked up further with the design team and provided within an arboricultural method statement for the contractor to ensure correct installation on site, and under arboricultural supervision.

6.4 The development provides an opportunity to enhance the site with new landscaping, including appropriate tree planting where space allows.

6.5 Providing the measures in this report are followed, development can proceed without causing harm to the existing trees.

7.0 Recommendations

7.1 That a copy of this report, and subsequent more detailed arboricultural method statement is kept on site, including an A3 colour copy of the tree protection plan. The arboricultural documents will be part of site induction by the main contractor to all sub-contractors.

7.2 That the arboricultural method statement is developed further and is 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 for the Local Authority.

7.3 That there are no ground level changes within the area shown on the plan by tree protection fencing.

7.4 That the line of the underground services should be ideally located outside of Root Protection Areas. However, as a precaution 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.

7.5 That the landscaping scheme includes a mix of native 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.

7.6 That no tree works take place until consent is granted.

7.7 That the tree protection fencing is installed before machinery enters the site and remains in place until the soft landscaping stage.

7.8 That the locations of the exploratory intrusive investigation for contamination are assessed by the arboricultural consultant and that any ground remediation methodology near trees is discussed with the arboricultural consultant.

7.9 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.

Appendix 1. Tree survey sheets

SHA 598 Tree schedule (BS5837)

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T1	1	Prunus sp. (Cherry sp.)	4.0	16	1	2.0		4.0		3.3		3.0		1.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Historic. Deadwood - Minor. Fork - Weak with included bark. Kanzan Diameter measured at narrowest point below fork Regrowth up to 2m long	22/01/2018	11.6	1.9	10-20	C1/C2
Tree T2	1	Prunus sp. (Cherry sp.)	4.0	17	1	2.5		2.3		3.0		3.0		1.0		Early Mature	Structural condition Poor. Physiological condition Poor. Crown reduction - Historic. Deadwood - Minor. Fork - Weak with included bark. Kanzan Diameter measured at narrowest point below fork Canker all over main structure Regrowth approx 1.5m long	26/01/2018	13.1	2.0	0-10	U
Tree T3	1	Prunus sp. (Cherry sp.)	4.0	16	1	2.7		4.0		2.3		2.3		1.0		Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Historic. Deadwood - Minor. Epicormic growth - Base. Poor past pruning. Kanzan Large pruning wound on main stem to the east at 0.5m and north at base Broken stem suckers	22/01/2018	11.6	1.9	10-20	C1/C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Generated By MyTREES tree management software

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G4	1	Swida sanguinea (Common Dogwood)	8.0	10	1			4.0						0.0		Semi Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Restricted / obscured. Arboricultural work - Historic. Fork - Weak with included bark. Height range 6-8m Multi-stemmed scrubby overgrown hedge	26/01/2018	4.5	1.2	10-20	C2
	1	Laurocerasus sp. (Laurel)																				
	1	Ilex aquifolium (Holly)																				
	1	Acer campestre (Field Maple)																				
	8	Crataegus monogyna (Common Hawthorn/Quick/May)																				
Tree T5	1	Corylus avellana (Common Hazel)	6.0	5 AVE	17	2.5		3.5		3.5		3.5		0.7		Mature	Structural condition Fair. Physiological condition Good. Rubbing limbs. Typical of its species	22/01/2018	19.2	2.5	20-40	C1/C2
Tree T6	1	Corylus avellana (Common Hazel)	4.0	4 AVE	8	2.5		3.5		3.5		3.5		1.0		Mature	Structural condition Fair. Physiological condition Good. Topped at 1.5m	22/01/2018	5.8	1.4	20-40	C1/C2
Tree T7	1	Acer campestre (Field Maple)	8.0	13 AVE	3	1.0		3.5		3.5		3.5		4.0		Early Mature	Structural condition Fair. Physiological condition Good. Fork - Suspected structurally sound. Forks at 0.3m Wound on southern stem at 1.5m	22/01/2018	17.6	2.4	20-40	C1/C2
Tree T8	1	Acer campestre (Field Maple)	8.0	22	1	1.5		1.0		2.0		4.0		4.0		Early Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Restricted / obscured. Base / stems obscured - Vegetation. Bark wound - Mammal. Wound on stem at 4m and 6m	22/01/2018	21.9	2.6	20-40	C1/C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T9	1	Acer campestre (Field Maple)	12.0	21	1	2.5		1.0		2.0		4.0		4.0		Early Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Restricted / obscured. Base / stems obscured - Vegetation. Bark wound - Mammal. Wound on branch at 4m	22/01/2018	20.0	2.5	20-40	C1/C2
Tree T10	1	Acer campestre (Field Maple)	12.0	9 AVE	2	4.0		4.5		4.0		2.0		1.0		Early Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Restricted / obscured. Base / stems obscured - Vegetation. Bark wound - Mammal. Wound on stem at 4m	22/01/2018	23.6	2.7	20-40	C1/C2
Tree T11	1	Acer campestre (Field Maple)	12.0	21	1	4.0		5.0		4.0		1.0		4.0		Early Mature	Structural condition Good. Physiological condition Good. Access to inspect base - Restricted / obscured. Base / stems obscured - Vegetation. Bark wound - Mammal. Wound on branch at 4m	26/01/2018	20.0	2.5	20-40	C1/C2
Tree T12	1	Carpinus betulus (Hornbeam)	11.0	15	1	2.5		3.5		2.5		5.0		3.0		Early Mature	Structural condition Good. Physiological condition Good. Deadwood - Minor.	22/01/2018	10.2	1.8	40+	C1/C2
Tree T13	1	Corylus avellana (Common Hazel)	6.0	7 AVE	15	2.5		4.5		3.5		3.5		2.0		Mature	Structural condition Fair. Physiological condition Good. Rubbing limbs. Typical of its species Lower crown up to 2m has been pruned back from site	22/01/2018	33.3	3.3	20-40	C1/C2
Group G14	4	Laurocerasus sp. (Laurel)	2.0	10	1			1.3						0.0		Early Mature	Structural condition Fair. Physiological condition Good. Cut to a height of 1.2 -1.5m recently and pruned back from site side	22/01/2018	4.5	1.2	20-40	C2
Tree T15	1	Acer campestre (Field Maple)	11.0	11 AVE	3	4.0		6.0		4.0		6.0		1.5		Mature	Structural condition Fair. Physiological condition Good. Bark wound - Mammal. Fork - Weak with included bark. Western leader pruned to a height of 1.5m, growing through fence Lower branches pruned back site side to a height of 2m Branch wound at 4m	22/01/2018	30.1	3.1	20-40	C1/C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T16	1	Acer campestre (Field Maple)	11.0	11 AVE	2	2.5		2.0		2.5		2.5		4.0		Mature	Structural condition Fair. Physiological condition Good. Bark wound - Mammal. Fork - Weak with included bark. Western leader pruned to a height of 1.7m, growing through fence Branch wound at 4m Competing leaders, fork at 4m	22/01/2018	17.1	2.3	20-40	C1/C2
Tree T17	1	Carpinus betulus (Hornbeam)	8.0	15	1	3.8		4.0		4.0		2.0		2.5		Early Mature	Structural condition Poor. Physiological condition Fair. Epicormic growth - Bole / principal stems. Suppressed crown - Minor. Significant bark damage on main leaders from 2-3m Stake still present but not attached	22/01/2018	10.2	1.8	10-20	C1
Tree T18	1	Carpinus betulus (Hornbeam)	7.0	15	1	2.5		3.2		3.7		3.0		2.5		Early Mature	Structural condition Fair. Physiological condition Good. Poor past pruning. Minor bark damage on main leaders from 2-3m	22/01/2018	10.2	1.8	10-20	C1
Group G19	15	Crataegus monogyna (Common Hawthorn/Quick/May) 10 Laurocerasus sp. (Laurel) 9 Acer campestre (Field Maple) 2 Photinia sp. (Photinia) 1 Swida sanguinea (Common Dogwood)	8.0	15	1			4.5						0.0		Early Mature	Structural condition Fair. Physiological condition Good. Hedgerow - Neglected / overgrown. Ranges from 4-8m in height but mainly 8m Stems on site	22/01/2018	10.2	1.8	10-20	C2

Stem **green** Estimated value

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Tree T20	1	Carpinus betulus (Hornbeam)	9.0	16	1	3.0		3.0		3.0		3.0		2.0		Early Mature	Structural condition Good. Physiological condition Good. Bark wound - Mammal. Epicormic growth - Base. Bark damage on main leaders from 2-3m	22/01/2018	11.6	1.9	10-20	C1
Group G21	30	Acer campestre (Field Maple)	9.0	23	1					6.0				2.0		Early Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Not possible. Some stems growing round mesh fence Height ranges from 7-9m Off-site stems	22/01/2018	23.9	2.8	10-20	C2

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G22		Sambucus nigra (Elder)	10.0	15	1			4.5						0.0		Early Mature	Structural condition Fair. Physiological condition Good. Access to inspect base - Restricted / obscured. Bark wound - Mammal. Dutch elm disease. Dead tree / trees. Fork - Weak with included bark. Elms in group are dead Height ranges from 5-10m Stems located close to fence line generally Fell - Ground level. Dead elms	26/01/2018	10.2	1.8	20-40	C2
	1	Rubus fruticosus s. (Blackberry/Bramble)																				
	1	Rosa sp. (Rose sp.)																				
	1	Mahonia aquifolium (Oregon Grape)																				
	1	Fraxinus excelsior (Ash)																				
	2	Carpinus betulus (Hornbeam)																				
	10	Acer campestre (Field Maple)																				
	12	Laurocerasus sp. (Laurel)																				
	24	Crataegus monogyna (Common Hawthorn/Quick/May)																				
Tree T23	1	Crataegus monogyna (Common Hawthorn/Quick/May)	4.0	30 AVE	2	2.0		3.0		2.5		2.0		0.0		Mature	Structural condition Fair. Physiological condition Fair. Access to inspect base - Restricted / obscured. Deadwood - Minor. Ivy or climbing plant. Partially topped at 2.5m	22/01/2018	58.8	4.3	10-20	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T24	1	Acer campestre (Field Maple)	10.0	27	1	4.5		4.5		4.5		4.5		2.5		Early Mature	Structural condition Poor. Physiological condition Fair. Bark wound - Mammal. Fork - Weak with included bark. Poor past pruning. Diameter measured at narrowest point below fork Bark wounds in crown 2-3m	22/01/2018	33.0	3.2	10-20	C1
Tree T25	1	Fraxinus excelsior (Ash)	10.0	21	1	4.0		4.0		4.5		4.0		2.5		Early Mature	Structural condition Good. Physiological condition Good. Deadwood - Minor. Some minor lower branches pruned back	22/01/2018	20.0	2.5	40+	C1
Tree T26	1	Acer campestre (Field Maple)	10.0	25	1	4.5		4.5		6.0		4.5		2.5		Early Mature	Structural condition Fair. Physiological condition Fair. Bark wound - Mammal. Epicormic growth - Base. Fork - Weak with included bark. Poor past pruning. Bark wounds in crown 2-3.5m, some significant Some lower branches pruned back	22/01/2018	28.3	3.0	10-20	C1
Tree T27	1	Fraxinus excelsior (Ash)	11.0	21	1	4.0		4.0		4.0		2.0		3.0		Early Mature	Structural condition Good. Physiological condition Good. Suppressed crown - Minor. Some minor lower branches pruned back	22/01/2018	20.0	2.5	40+	C1
Tree T28	1	Salix fragilis (Crack Willow)	10.0	30	1	4.0		4.0		4.5		6.5		4.0		Early Mature	Structural condition Fair. Physiological condition Fair. Deadwood - Minor. Deadwood - Remove. Remove over site	22/01/2018	40.7	3.6	20-40	C1
Tree T29	1	Sambucus nigra (Elder)	4.5	10 AVE	10	4.0		3.0		2.0		3.0		1.0		Late Mature	Structural condition Poor. Physiological condition Poor. Fallen tree / trees - Partial collapse. Multi-stemmed.	22/01/2018	45.2	3.8	0-10	U
Group G30	6	Laurocerasus sp. (Laurel) 13 Crataegus monogyna (Common Hawthorn/Quick/May) 6 Acer campestre (Field Maple)	6.0	20	1							5.0		0.0		Early Mature	Structural condition Fair. Physiological condition Good. Branch - Broken. Bark wound - Mammal. Deadwood - Minor. Stems on site Height ranges from 2m laurels to 6m	22/01/2018	18.1	2.4	20-40	C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

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Generated By MyTREES tree management software

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G31	6	Thuja plicata (Western Red Cedar)	5.0	12	1							2.0		0.0		Semi Mature	Structural condition Good. Physiological condition Good. Fallen tree / trees - Whole tree. Two dead, one has blown over slightly Fallen tree / stems - Remove.	26/01/2018	6.5	1.4	40+	C2
Tree T32	1	Platanus x hispanica (London Plane)	12.0	22	1	4.8		4.0		4.5		4.0		2.0		Early Mature	Structural condition Fair. Physiological condition Good. Deadwood - Minor. Fork - Weak with included bark.	26/01/2018	21.9	2.6	40+	C1
Tree T33	1	Abies sp. (Fir sp.)	4.0	11	1	2.0		2.0		2.0		2.0		0.0		Semi Mature	Structural condition Good. Physiological condition Good. Nice young tree, but should not be a constraint	26/01/2018	5.5	1.3	40+	C1
Tree T34	1	Salix fragilis (Crack Willow)	10.0	30	1	6.0		4.0		6.0		6.5		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Deadwood - Major. Deadwood - Minor. Decay / structural defect - Open cavity / cavities. Fork - Cracked. Foreign object. Competing leader with weak fork at 0.3m Secondary leader with major vertical wound from fork to 1m 3m crown clearance is from secondary leader, the remaining crown clearance is 4m Reduce lateral limb / limbs. Secondary leader over site back to boundary Deadwood - Remove. Over site	26/01/2018	40.7	3.6	10-20	C1/C2
Tree T35	1	Acer platanoides (Norway Maple)	9.0	25	1	5.0		4.0		5.0		5.0		2.5		Early Mature	Structural condition Fair. Physiological condition Good. Deadwood - Minor. Major bark wound western side of main stem at 1m Multiple scaffold branches from crown break with potential weak forks	26/01/2018	28.3	3.0	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G36	1	Syringa sp. (Lilac sp.)	5.0	12	1									0.0		Early Mature	Structural condition Fair. Physiological condition Fair. Access to inspect base - Restricted / obscured. Base / stems obscured - Vegetation. Stems on site Five of the cedars have died Height ranges from 1-5m	26/01/2018	6.5	1.4	10-20	C2
	1	Sambucus nigra (Elder)																				
	1	Rubus fruticosus s. (Blackberry/Bramble)																				
	1	Photinia sp. (Photinia)																				
	1	Laurocerasus sp. (Laurel)																				
	7	Thuja plicata (Western Red Cedar)																				
Tree T37	1	Salix caprea (Goat Willow/Great Sallow)	7.0	29	1	5.0		5.0		4.0		3.5		2.0		Mature	Structural condition Poor. Physiological condition Fair. Crack - Longitudinal / shear crack. Crown reduction - Historic. Decay / structural defect in crown limb / limbs - Major. Deadwood - Minor. Decay / structural defect - Principal stems. Fork - Weak with included bark. Poor past pruning. Previously pollarded at approximately 2.5-3m Fell - Ground level.	22/01/2018	38.0	3.5	0-10	U
Group G38	29	Thuja plicata (Western Red Cedar)	7.0	12	1							3.0		0.0		Semi Mature	Structural condition Good. Physiological condition Fair. Access to inspect base - Restricted / obscured. Last seven trees at the southern end of group are dead Stems on site Could be a retained screen for reducng the noise of the adjacent major road	26/01/2018	6.5	1.4	40+	C2
Tree T39	1	Salix fragilis (Crack Willow)	11.0	25	1	5.0		5.0		7.0		7.0		2.5		Early Mature	Structural condition Fair. Physiological condition Fair. Access to inspect base - Not possible. Deadwood - Minor. Deadwood - Remove. Over site	22/01/2018	28.3	3.0	20-40	C1/C2

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T40	1	Acer campestre (Field Maple)	8.0	27	1	5.4		4.0		4.5		6.0		3.0		Early Mature	Structural condition Fair. Physiological condition Fair. Bark wound - Mammal. Deadwood - Minor. Poor past pruning. Bark damage on principal stems at 2-4m and along lateral branches Lower branches pruned back	22/01/2018	33.0	3.2	20-40	C1
Tree T41	1	Aesculus hippocastanum (Horse Chestnut)	8.0	20	1	1.8		2.0		3.0		3.2		2.5		Early Mature	Structural condition Fair. Physiological condition Fair. Decline - Evident / observed. Deadwood - Minor. Lower branches pruned back	22/01/2018	18.1	2.4	10-20	C1
Group G42	16	Crataegus monogyna (Common Hawthorn/Quick/May) 5 Corylus avellana (Common Hazel) 3 Carpinus betulus (Hornbeam) 24 Acer campestre (Field Maple)	10.0	15	1	4.0								0.0		Semi Mature	Structural condition Fair. Physiological condition Good. Deadwood - Minor. Fork - Weak with included bark. Lower branches pruned back	22/01/2018	10.2	1.8	20-40	C2
Tree T43	1	Betula pendula (Silver Birch)	13.0	12	1	1.0		1.0		1.0		1.0		5.0		Semi Mature	Structural condition Fair. Physiological condition Fair. Deadwood - Minor. Drawn up form, with dead lower branches	22/01/2018	6.5	1.4	40+	C1
Tree T44	1	Acer campestre (Field Maple)	12.0	22	1	4.8		3.0		2.0		4.0		3.0		Early Mature	Structural condition Fair. Physiological condition Good. Deadwood - Minor. Weak fork at 1m with side branch	22/01/2018	21.9	2.6	20-40	C1
Tree T45	1	Cerasus avium (Wild Cherry)	12.0	27	1	6.0		5.4		5.0		5.7		2.5		Early Mature	Structural condition Fair. Physiological condition Good. Poor past pruning. Lateral branch forming a competing leader at 1.5m	22/01/2018	33.0	3.2	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T46	1	Alnus glutinosa (Common Alder)	14.0	27	1	4.7		4.0		4.0		3.5		2.5		Early Mature	Structural condition Good. Physiological condition Good. Bark exudation. Deadwood - Minor. Slight bias to west, leader with tight fork at 11m Lower crown pruned	22/01/2018	33.0	3.2	20-40	C1
Tree T47	1	Alnus glutinosa (Common Alder)	11.0	20	1	4.5		3.0		2.5		4.0		4.0		Early Mature	Structural condition Good. Physiological condition Fair. Bark exudation. Deadwood - Minor.	22/01/2018	18.1	2.4	20-40	C1
Tree T48	1	Thuja plicata (Western Red Cedar)	7.0	16	1	1.5		1.5		1.5		1.5		0.5		Early Mature	Structural condition Fair. Physiological condition Good. Branch - Broken. Branch - Suspended. Broken branch to the east	22/01/2018	11.6	1.9	20-40	C1
Tree T49	1	Sorbus aucuparia (Rowan/Mountain Ash)	5.0	14	1	2.3		2.3		2.3		2.3		1.5		Semi Mature	Structural condition Fair. Physiological condition Good. Poor past pruning.	22/01/2018	8.9	1.7	20-40	C1
Tree T50	1	Sorbus aucuparia (Rowan/Mountain Ash)	5.0	11	1	2.2		2.2		2.2		2.5		2.0		Semi Mature	Structural condition Fair. Physiological condition Good. Poor past pruning.	22/01/2018	5.5	1.3	20-40	C1
Tree T51	1	Acer campestre (Field Maple)	10.0	24	1	4.7		4.5		2.0		4.5		2.5		Early Mature	Structural condition Good. Physiological condition Good. Bark wound - Mammal. Poor past pruning. Bark wounds on major lateral branches	22/01/2018	26.1	2.9	20-40	C1
Tree T52	1	Acer campestre (Field Maple)	10.0	21	1	3.0		4.0		4.0		3.5		2.5		Early Mature	Structural condition Fair. Physiological condition Good. Bark wound - Mammal. Fork - Weak with included bark. Poor past pruning. Bark wounds on major lateral branches	22/01/2018	20.0	2.5	20-40	C1
Tree T53	1	Acer campestre (Field Maple)	10.0	15	1	3.5		3.5		3.5		3.5		2.5		Early Mature	Structural condition Fair. Physiological condition Good. Bark wound - Mammal. Deadwood - Minor. Poor past pruning. Major bark damage on leader at 3m	22/01/2018	10.2	1.8	10-20	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G54	1	Swida sanguinea (Common Dogwood)	7.0	18	1	3.0								0.0		Early Mature	Structural condition Fair. Physiological condition Good. Deadwood - Minor. Hedgerow - Neglected / overgrown. Stems on site	22/01/2018	14.7	2.2	20-40	C2
	12	Crataegus monogyna (Common Hawthorn/Quick/May)																				
	1	Corylus avellana (Common Hazel)																				
	1	Carpinus betulus (Hornbeam)																				
	4	Acer campestre (Field Maple)																				

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G55	1	Corylus avellana (Common Hazel)	7.0	15	1			3.5						0.0		Early Mature	Structural condition Fair. Physiological condition Good. Hedgerow - Neglected / overgrown. Stems on site The buddleia is growing biased into the site by approx 4m Height ranges from 3-7m	26/01/2018	10.2	1.8	10-20	C2
	1	Photinia sp. (Photinia)																				
	1	Swida sanguinea (Common Dogwood)																				
	8	Laurocerasus sp. (Laurel)																				
	15	Crataegus monogyna (Common Hawthorn/Quick/May)																				
	20	Acer campestre (Field Maple)																				
Tree T56	1	Pinus nigra (Black Pine)	13.0	40	1	4.5		5.0		4.5		5.0		3.0		Mature	Structural condition Good. Physiological condition Good. Off-site stem	22/01/2018	72.4	4.8	20-40	B1
Tree T57	1	Acer platanoides (Norway Maple)	10.0	13 AVE	5	3.0		4.0		4.5		5.0		3.0		Mature	Structural condition Fair. Physiological condition Fair. Access to inspect base - Restricted / obscured. Arboricultural work - Historic. Arboricultural work - Recent. Base / stems obscured - Vegetation. Poor past pruning. Previously crown lifted Crown reduced partially from site	22/01/2018	65.2	4.6	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

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Maple Road

Tree ID	No.	Species	Height (m)	Stem diameter (cm)	No. of Stems	CROWN SPREAD (m) N	NE	E	SE	S	SW	W	NW	Crown clearance (m)	L.B. (m)	Life stage	Condition Notes / Recommendations	Survey date	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T58	1	Acer platanoides (Norway Maple)	10.0	22	1	3.0		1.0		2.0		5.0		3.0		Mature	Structural condition Fair. Physiological condition Fair. Access to inspect base - Restricted / obscured. Arboricultural work - Historic. Arboricultural work - Recent. Base / stems obscured - Vegetation. Poor past pruning. Previously crown lifted eastern part of crown, tree now unbalanced	28/01/2018	21.9	2.6	20-40	C1

Stem **green** Estimated value

Stem **AVE** Average stem diameter for multi-stemmed trees

L.B. Height of lowest branch attachment (m) - where relevant

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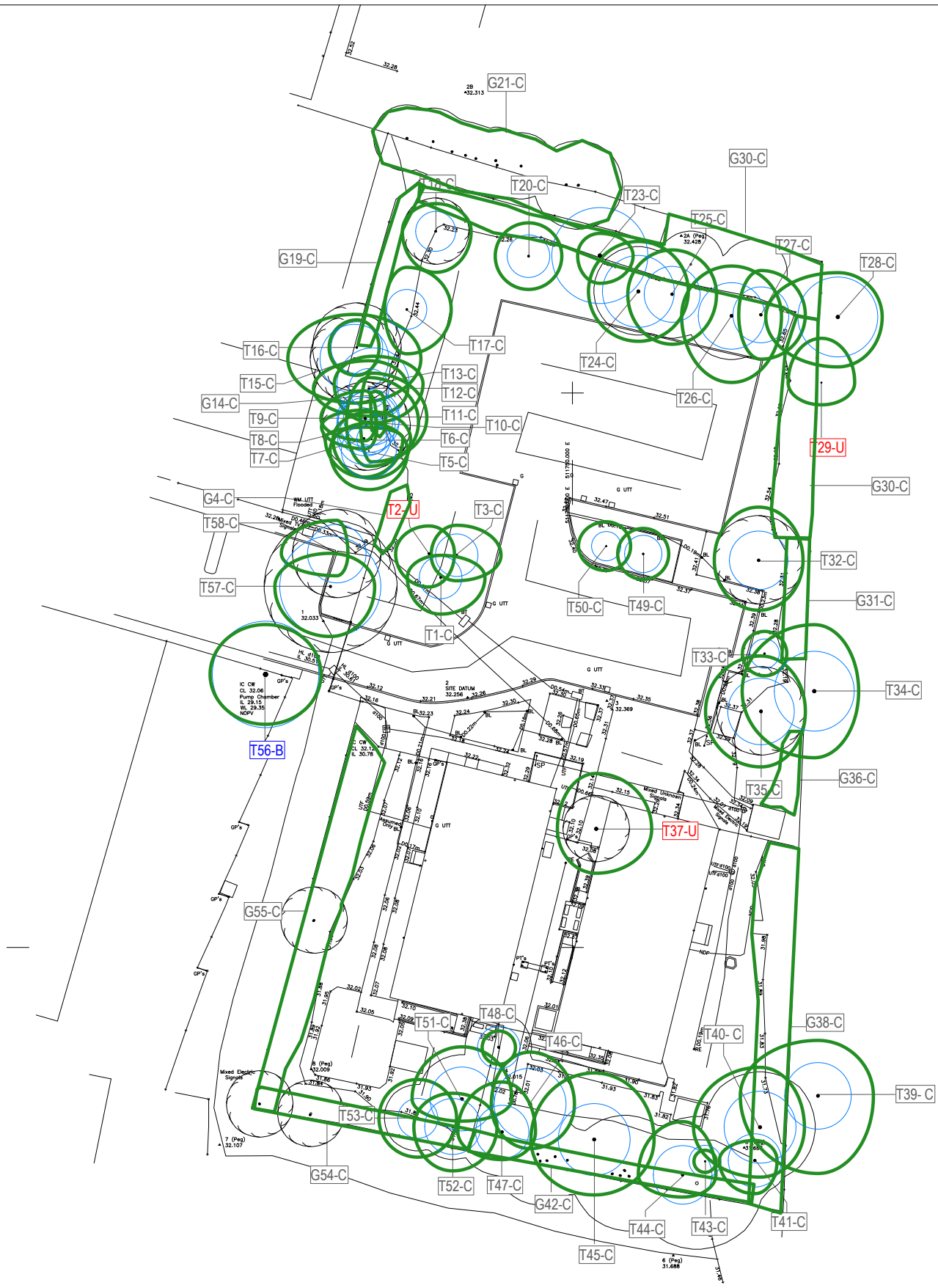
Table 1 of BS5837 (2012) **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see note)				
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 a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (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 health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7			**RED**
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Tree 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 arboricutural 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 150 mm	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 this 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**

Appendix 2. Tree survey plan



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

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

Group

Sudbury Stables Downham,
Essex CM11 1LB

Phone: 01268 711021
Website: www.ses-eco.co.uk

Site
Maple Road, Hayes, UB4 9NG

Client
London Borough of Hillingdon

Drawing title
Tree Survey Plan

Drawing no.	*Scale*	*Date*
1	1:500@A3	5.2.18

Revision	*Drawn by*	*Orientation*
-	ND-H	N

Appendix 3. Tree protection plan

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

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

Group

Trees to be removed

Tree protection fencing

Area of potential root pruning due to minor incursion (less than 1%) byt the proposed design.

Sudbury Stables Downham, Essex CM11 1LB

Phone: 01268 711021
Website: www.ses-eco.co.uk

Site	Maple Road, Hayes, UB4 9NG
Client	London Borough of Hillingdon
Drawing title	Tree Protection Plan
Drawing no.	1
Scale	1:500@A3
Date	11.11.22
Revision	-
Drawn by	TI
Orientation	

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 line with the principles of 'Natural target pruning'. An ecological check is required by a competent person prior to tree works being carried out. Works should not take place until planning permission is granted and all pre-commencement conditions are discharged.

Tree no.		Species	Proposed works	Reason
T	1	Cherry *Prunus kanzan*	Fell to ground level	For development
T	2	Cherry *Prunus kanzan*	Fell to ground level	Poor condition
T	3	Cherry *Prunus kanzan*	Fell to ground level	For development
G	4	Mixed group of native hedgerow species	Fell to ground level	For development
T	5	Hazel *Corylus avellana*	Coppice to 600mm above ground level (coppard)	To improve relationship with proposal
T	6	Hazel *Corylus avellana*	Coppice to 600mm above ground level (coppard)	To improve relationship with proposal
T	7	Hazel *Corylus avellana*	Coppice to 600mm above ground level (coppard)	To improve relationship with proposal
T	10	Field maple *Acer campestre*	Fell to ground level	For development
T	11	Field maple *Acer campestre*	Fell to ground level	For development
T	12	Hornbeam	Fell to ground level	For development
T	13	Hazel *Corylus avellana*	Coppice to 600mm above ground level (coppard)	To improve relationship with proposal
G	14	Laurel	Fell to ground level	For development
T	15	Field maple *Acer campestre*	Fell to ground level	For development
T	17	Hornbeam *Carpinus betulus*	Fell to ground level	For development
T	20	Hornbeam *Carpinus betulus*	Fell to ground level	For development

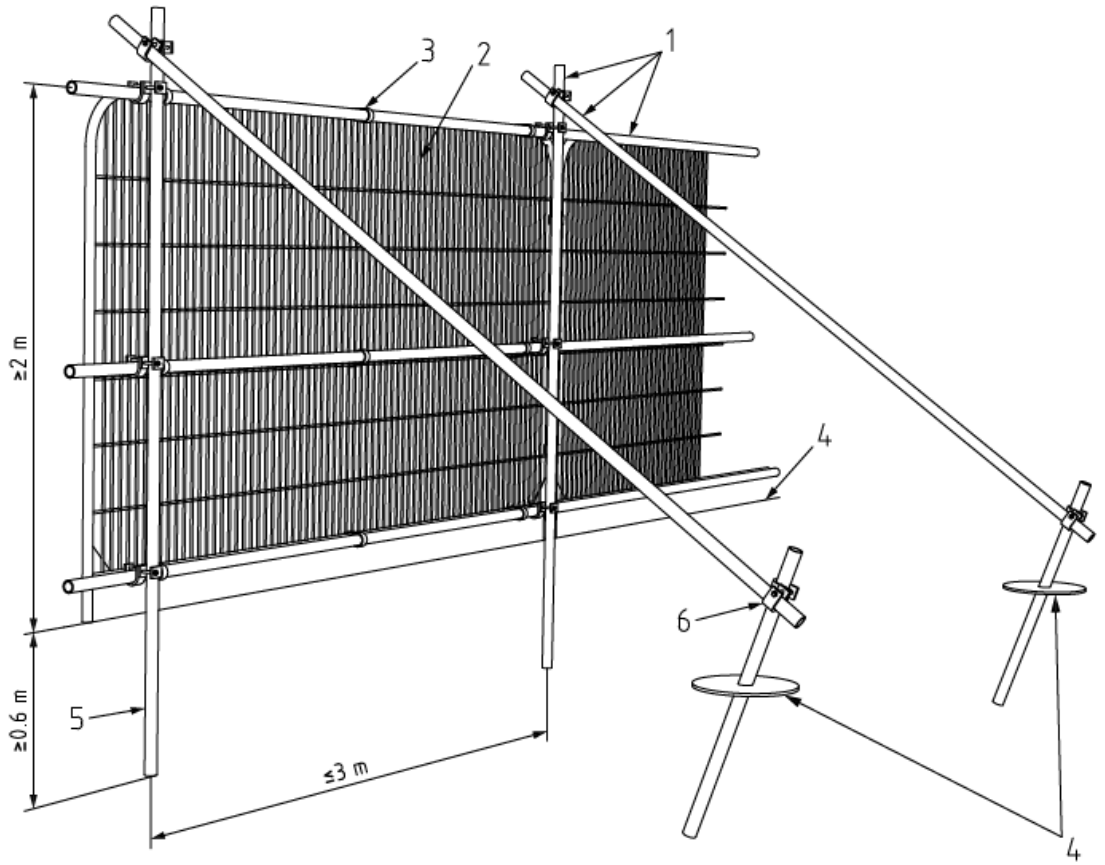
Tree no.		Species	Proposed works	Reason
T	23	Hawthorn *Crataegus monogyna*	Fell to ground level	For development
T	24	Field maple *Acer campestre*	Fell to ground level	For development
T	25	Ash	Fell to ground level	For development
T	26	Field maple *Acer campestre*	Potential minor root pruning due to negligible incursion of RPA by less than 1%	For development
T	29	Elder *Sambucus nigra*	Fell to ground level	Poor condition
G	31	Western red cedar *Thuja plicata*	Fell to ground level	For development, some are also dead
T	32	London plane *Platanus x hispanica*	Fell to ground level	For development
T	33	Fir *Abies sp.*	Fell to ground level	For development
T	34	Willow *Salix fragilis*	Fell to ground level	For development
T	35	Norway maple *Acer platanoides*	Fell to ground level	For development
G	36	Mixed group native and ornamental species	Fell to ground level	For development
T	37	Goat willow *Salix caprea*	Fell to ground level	Poor condition
G	38	Western red cedar *Thuja plicata*	Partial removal of group to ground level, reduce remainder in height and spread to create formal hedge.	To clear proposed car parking bay
T	45	Cherry *Prunus sp.*	Fell to ground level	For development
T	46	Alder *Alnus glutinosa*	Fell to ground level	For development

Tree no.		Species	Proposed works	Reason
T	47	Alder *Alnus glutinosa*	Fell to ground level	For development
T	48	Western red cedar	Fell to ground level	For development
T	51	Field maple *Acer campestre*	Fell to ground level	For development
T	52	Field maple *Acer campestre*	Fell to ground level	For development
T	53	Field maple *Acer campestre*	Fell to ground level	For development
G	55	Mixed group of native hedgerow species	Fell to ground level	For development

Appendix 5. Tree protection specification

Plate 1

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

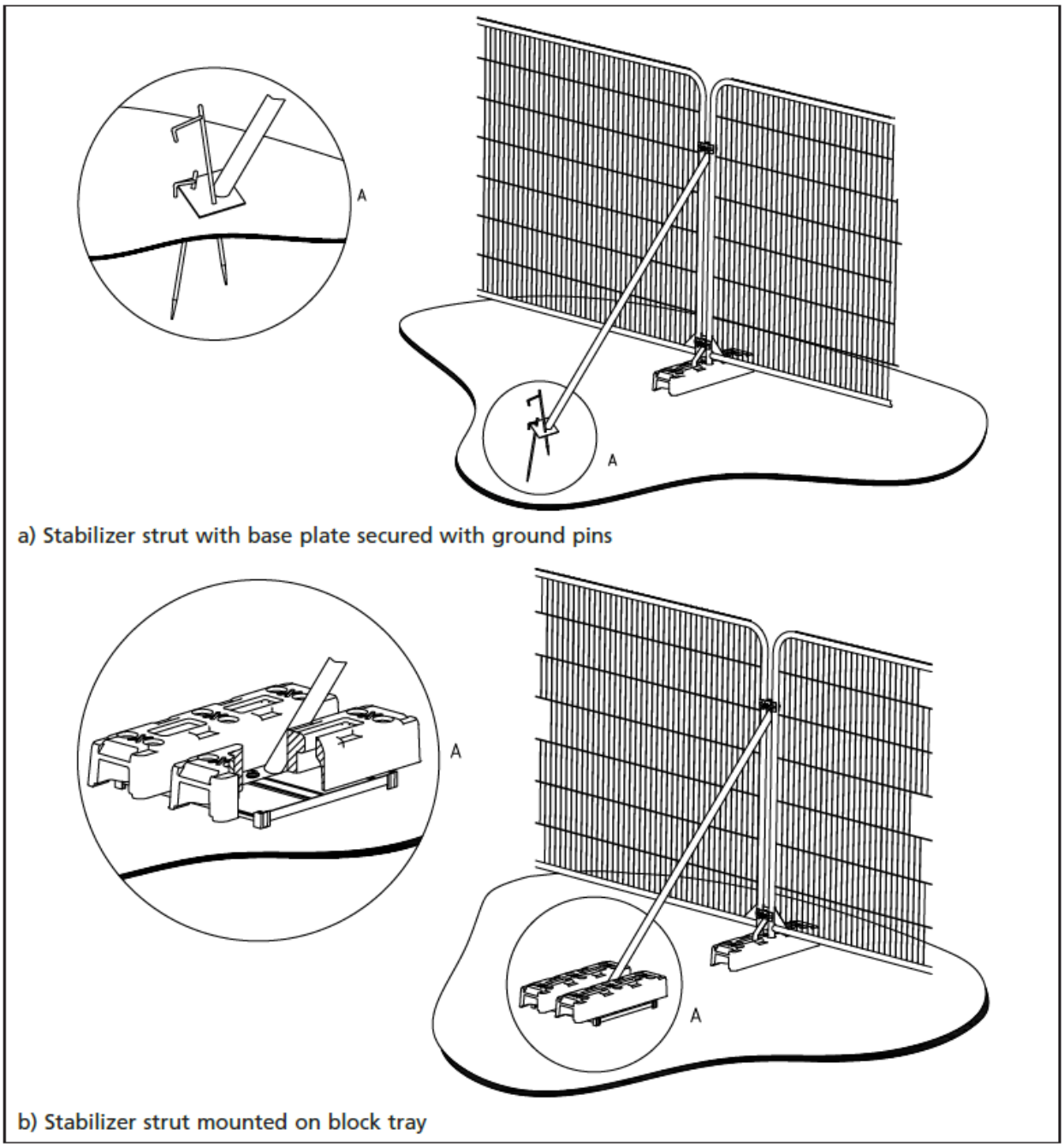
Tree protection fencing specification from BS 5837:2012 Plate 1 Section 6.2.2 of BS.

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

The default specification is shown above at Plate 1. 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, Plate 2 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 out 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.

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Plate 2

Suggested warning sign format

Appendix 6. Draft arboricultural method statement

Tree works:

Recommendations for tree works can be found in the tree surgery schedule in Appendix 5. 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.

The following information must be sought:

- Current employers, public and product liability insurance
- Waste carriers license
- 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

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

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.

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.

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.

New 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 within 1m of the stem. Top soil and other materials will be transported by wheelbarrow on running boards when working near trees.

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 Maple Road, Hayes UB4 9NG*' 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.

Appendix 7. Tree related legislation

Tree preservation orders

The Town and Country Planning (Tree Preservation) (England) Regulations 2012. A search on Uttlesford District Council on 26 January 2018 revealed that no tree preservation orders affect the site.

Conservation Area

The site is not in a Conservation Area.

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. All ecological matters are addressed by SES.

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'.*

Common law

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.

Felling license

A felling license is required to fell more than 5 cubic metres of timber in a calendar quarter. Applications typically take 13 weeks to process and are administered by the Forestry Commission.

Exemptions include:

- Tree surgery other than felling
- Trees smaller than 8cm at 1.3m
- Trees growing in a garden, orchard, and churchyard or designated open space.
- Works to facilitate planning permission once all pre-commencement conditions are discharged
- Works to dangerous trees

Hedgerow Regulations 1997

A countryside hedgerow is protected if it meets the following criteria (paraphrased and commented on in this case):

- It is more than 20m long with gaps of 20m or less in its length – this applies in this case
- It is on land used for agriculture
- If it is more than 30 years old (unknown, but possibly in this case)
- Various historical criteria (a matter for a landscape historian/archeologist)
- Various ecological criteria (a matter for the ecologist)

For further information see https://www.gov.uk/guidance/countryside-hedgerows-regulation-and-management

Works to facilitate planning permission are exempt from this requirement.

Appendix 8. Statement of methodology and reference material

Statement of methodology

Review of plans

Site visit made by Tracy Clarke and Sharon Hosegood on 13 January 2017 in cold, slightly windy, dry weather.

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).

TPO/Conservation Area check on 26 January 2018

Received material

UTT_15_0954_OP-TOPOGRAPHICAL (CPPLC REV A) -2185029

PL-001 - Location Plan Rev A

PL 21- Proposed Street Views-Afi

PL 22- Proposed Street Views-Afi

23485A_50_Units per hectare_Rev_B

23485A_13_Red_Line

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

Uttlesford District Council website

C. Mattheck 'The body language of trees' 2015

Appendix 9. Caveats & Exclusions

Specific Report Caveats

9.1 The survey is concerned solely with arboricultural issues.

9.2 Trees are dynamic living organisms whose health and the condition can change rapidly. Any changes to the tree or conditions close to the tree may change the stability and condition of the tree and a further examination would be required and may affect the validity of this report.

9.3 Hedges and dense tree belts often contain more than one species of vegetation and in certain circumstances it may not be possible (due to density, size, time of year) to identify all species within a hedge or dense tree belt. In this eventuality the tree schedule will identify this as may contain high water demanding species and, in these cases, a further survey will be required ahead of the design process.

9.4 Vegetation can establish very quickly on and off site. It is the responsibility of the client to ensure that prior to the design of hard landscaped areas, infrastructure and foundations where trees need to be considered as part of the design process, a walkover survey is instructed and undertaken to identify any vegetation that may alter the designs as required by the NHBC Guidelines Chapter 4.2 and any other building standard or regulation relevant to the proximity of trees and development.

9.5 The arboriculturist must be involved at all stages throughout the development process to ensure that any impacts to trees and from trees have been considered and that any design or layout changes are checked as soon as possible to avoid delays and changes that may be necessary after review.

9.6 In order for SES to provide comment in respect of impacts to trees within the Arboricultural Impact Assessment and the Arboricultural Method Statement we will require the most up to date details of the design and, where known the drainage and utility runs as soon as possible. SES cannot be held responsible in the event of changes to a design or layout that may affect the impact to trees or a negative response from planning authorities where the most up to date information has not been provided or is not received by us where time permits that we can assess the layout changes and provide our view.

9.7 When working with the constraints of trees the design should follow a mitigation hierarchy and look to avoid all root protection areas where possible. Where this can't be achieved the arboriculturist will provide advice in respect of retention, loss or working within a Root Protection Area.

9.8 This report is valid for 12 months.

9.9 **Copyright and non-disclosure**

Appendix 10. Glossary

Term	Explanation
Ancient hedgerow	Hedgerows which existed before the Enclosure Acts (1720-1840). These support a great variety of plants and animals, being species-rich with on average five or more native wood species in a 30m length.
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.
Backfill medium	Material used for refilling an excavated planting hole.
Bacteria	Microscopic single celled organisms, including many species that break down dead organic matter, together with others that can cause disease in other organisms.
Bark	A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm.
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.
Canopy	The topmost layer of twigs and foliage in a tree.
Construction exclusion zone	An area based on the root protection area from which access is prohibited for the duration of the project.
Coppard	A hybrid word (from coppice and pollard), describing a tree consisting of several coppice stems, each of which has been pollarded.
Coppincing	The cutting of a woody plant near ground level to encourage the development of multiple stems.
Crown	In arboriculture, the main foliage-bearing portion of a tree.
Crown lifting	The removal of 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.

Term	Explanation
Dieback	The death of part of a plant, usually starting from a distal point and often progressing proximally in stages.
Ecosystem services	The benefits that a particular species or range of species bestow upon others (including humans) though 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 tin 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.
Hazard	A thing, a process or a potential event that has the potential to cause harm.
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.
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 *'Trees in relation to design, demolition and construction – Recommendations'.*
Root flare	Thickened and expanded base of s tree stem at ground level form 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.
Sapwood	The living xylem of a wood pant, which either loses viability gradually over a number of years or decades or becomes converted in to a distinct, largely dead heartwood.
Service	In construction, any above-or below-ground structure o apparatus for utility provision.
SULE	Safe useful life expectancy of a tree (Barrell)
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.

Term	Explanation
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.
Veteran tree	*'A tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species'.* Ancient Tree Guide No. 4 (ATF, 2008).
Veteranization	Controlled infliction of damage on a tree to achieve a specific habitat objective.
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 Mattheck and Breloer (1995) to aid the diagnosis of potential defects through visual signs and the application of mechanical criteria.