

CLIVE FOWLER ASSOCIATES
Tree Consultancy

Telephone: (020) 8898 5725 Mobile: 07951 175710 E-mail: clivefowler.arb@btinternet.com

39 WARREN ROAD, WHITTON, TWICKENHAM, MIDDLESEX TW2 7DH

**TREE SURVEY AND ASSESSMENT IN
RELATION TO PROPOSED
DEVELOPMENT AT
LAND TO THE REAR OF
61 BELMONT ROAD,
TWICKENHAM,
MIDDLESEX
TW2 5DA.**

Clive Fowler, Dip.Arb (RFS), F.Arbor.A, MCIHort, Tech. Cert.Arbor.A

Tree Survey and Assessment in Relation to Proposed Development at Land to the Rear of 61 Belmont Road, Twickenham, Middlesex, TW2 5DA.

1. I am instructed by Mr Trout to undertake an inspection of trees at the above site in connection with the demolition of the existing garage / outbuilding and the construction of a new detached dwelling. I carried out my inspection on the 24th September 2015 and this report summarises my findings.
2. Before any works to trees specified within this report are undertaken it would be necessary to contact the Local Authority to determine whether any of the trees are protected by a Tree Preservation Order or if the site is situated within a Conservation Area. If either applies a written application to the Local Authority will be necessary.
3. I have been supplied with a copy of the existing site survey and enclose a reduced copy of this drawing as appendix 'b' to this report which indicates the position of the trees with their respective identification numbers.
4. Details of individual trees are given in the attached schedule (appendix 'a'). Species are shown by their common names. All measurements are approximate and stem diameters are measured at 1.5 metres from ground level unless stated. All inspections were carried out from ground level only and no specialist decay detection equipment was used to assess internal wood quality. In some cases it was not possible to fully inspect the trees due to them being covered in dense ivy or being situated in neighbouring land.
5. The information contained within the schedule has been collected in accordance with recommendations given in BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'. I have also categorised each tree in accordance with the above Standard and they are colour coded on the enclosed site survey drawing (appendix 'b') to aid their recognition.

The following categories apply;

A - Trees of high quality. (Green)

B - Trees of moderate quality. (Blue)

C - Trees of low quality. (Grey)

U - Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years. (Red)

6. In addition to the above, each tree is assigned a subcategory (1 – 3) which are detailed in the table attached at appendix 'e'. It is intended that each subcategory

carries equal weight – for example an A 1 category tree would have the same retention priority as an A 2 tree.

7. The specification for pruning works are as per recommendations given in BS 3998 'Tree Work - Recommendations'.

General.

8. The tree cover at this site is extensive in nature and is located largely towards its boundaries and consists of mixed evergreen and deciduous species with a varied age structure. To the south east of the site are a mature apple and plum tree (T.11 & 12), with the apple tree having a pronounced incline towards the south west, whilst the plum has two main stems arising at a height of approximately 1.2 metres with a potentially weak union. A large common walnut grows to their east (T.14) and, although it is placed within the 'b' category in the attached survey schedule (appendix 'a'), it has a number of significant defects which render it highly vulnerable to failure and therefore requires the works recommended in appendix 'a' as a matter of urgency, if it is to be retained / further stem failure avoided. To the south of this tree is a vigorous Leyland cypress (T.13) which has potentially weak main stem unions that also necessitate reduction works and, to its north east, is a previously fallen walnut tree with fungal fruiting bodies attached to its main stem (T.16). A number of further low quality cypress also grow along the eastern boundary (Group 9, T.15 & T.17 – 18) with trees 17 & 18 requiring reduction works due to potentially weak stem unions.
9. To the north east of the site and close to the boundary with the River Crane are a group of hazels (Group 4), a multi stemmed common walnut of poor form (T.19), and two close growing and visually significant Lombardy poplars (T.20 – 21) which form a joint canopy. Towards the more central part of the northern boundary area are several Leyland cypress which are in variable condition (with some having fallen and continued to grow - T.24 & part of Group 13), a large and broad spreading ash with a number of developing overlong laterals (T.26), and several young deciduous trees that are largely drawn in nature due to their close proximity to one another and which include English oak, horse chestnut and ash.
10. To the north west of the site and close to the boundary, the tree cover is very dense in nature and includes ash, sycamore, Leyland cypress, plum and English oak. A group of close growing plum trees which are in poor condition are located to the west of the site (T.39 & T.46 – 49) and should ideally be removed so as to allow the establishment of new planting.
11. To the south west of the site are a group of low quality Leyland cypress and plum trees (Group 16), some of which have died, a cherry tree with slightly sparse foliage (T.50), a small holly (T.51), and a large wild cherry (T.52) that has been heavily reduced / pollarded in the past and has reduced vigour which necessitates monitoring of its condition.

Proposed Development/Methodology.

12. I have assessed the proposed site layout whilst having regard to tree protection measures recommended in BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' and taking into account the Root Protection Areas (RPA's) shown in appendix 'c'. I have also prepared a Tree Protection Plan which is enclosed as appendix 'f' to this report.
13. Trees that are proposed for removal in accordance with good Arboricultural practice are detailed in appendix 'a' & 'c'. No trees are proposed for removal as a direct result of this development and the new dwelling has been carefully located away from all Root Protection Areas.
14. To the front of the proposed building and to its south east, some minor cutting back or removal of individual plants may be required from group 7 which consists of an overgrown mixed shrubbery and includes cherry laurel, privet, yew, holly and euonymus. Should the removal of any of this group be required in order to provide / improve the working space during the development process, appropriate replanting will be undertaken at the landscaping stage.
15. Careful demolition of the existing building and associated hard surfacing will be required and all such work must be undertaken in accordance with Section 7.3 of BS5837: 2012 as detailed below;

7.3.1 Where demolition is proposed on a site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree (s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturalist.

Note: The local authority will be able to advise whether trees are under statutory protection such that consent for the tree works might be required.

7.3.2 When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed (see 6.2.3), to protect the underlying soil to the edge of the structure.

7.3.3 All plant and vehicles engaged in demolition works should either operate outside the RPA, or run on the ground protection (see 6.2.3). Where such ground protection is required, it should be installed prior to commencement of operations.

7.3.4 Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the building (often referred to as ‘top down, pull back’).

Note: Where there is a significant build up of dust on the foliage, it might be necessary to hose down the tree(s).

7.3.5 The advice of an arboriculturalist should be sought where underground structures are present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent roots.

7.3.6 Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground (see 7.2.2 for protection of exposed roots). If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

16. The proposed location of all services and soakaways etc. must be carefully considered at an early stage so as to ensure that excavation within Root Protection Areas is avoided or kept to an absolute minimum. Where such works are unavoidable (and following consultation with an Arboriculturalist) it will be a contractual requirement that any excavations in such areas are carried out in strict accordance with Section 7.7 of BS5837: 2012 and the National Joint Utilities Group publication (Volume 4) ‘Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees’ and in the presence of a person suitably qualified and experienced in Arboriculture.
17. Landscaping works must also take into account the preservation of existing trees and soil levels will not be altered within RPA’s without prior consultation with an Arboriculturalist. Any proposed planting must be carried out carefully in such areas so as to avoid unnecessary root damage.
18. All tree protection will be installed prior to any site clearance works and must be maintained throughout the development process. Areas will also be designated for the delivery and storage of materials and site huts, avoiding RPA’s and ensuring that damage to the existing garden areas is kept to a minimum.

Conclusions.

19. This development has been carefully designed so as to take into account all trees of significance and providing the above guidelines in relation to BS 5837: 2012 and NJUG Volume 4 are followed and tree protection is installed prior to any development activity and maintained throughout the construction period, trees to be retained should be safely integrated within the proposals.
20. Prior to commencement of any works detailed in appendix 'a', it will be necessary to contact the Local Authority to determine whether trees at this site are the subject of protective legislation. Every effort should also be made to ensure that the protection afforded by the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000 in relation to nesting birds and disturbing or damaging bat roosts is fully complied with.
21. Any tree works which are undertaken should preferably be carried out by an Arboricultural Association Approved Contractor. Such works must be carried out to a minimum standard of BS3998 and in accordance with good Arboricultural practice.

C. Fowler.

C.E. Fowler Dip. Arb (RFS), F. Arbor.A, MCIHort, Tech. Cert. (Arbor.A).
January 2016.

Appendix 'a'
Tree details

Clive Fowler Associates: Tree Survey at 61 Belmont Road, Twickenham, Middlesex.

No.	Species	Diameter @ 1.5 m (cm)	Age Class	Crown radius (m)	Height to 1st branch (m)	Crown height (m)	Height (m)	Condition / vitality	Estimated remaining contribution (years)	Category	Works	Notes.
9	Lawson cypress	12 & 9	Middle aged	2 north 1 east 0.5 south 1 west	Ground level	Ground level	6.5	Good	10>	C 2	No action.	Twin stemmed at ground level. Lower growth suppressed by dense adjacent laurel growth.
Group 7	Cherry laurel, Privet, Yew, Holly & Euonymus	16, 11 & 17 - largest plant	Mature	4	Ground level	Ground level	5.5 - tallest	Good	10>	C 2	Cut back / remove where necessary to allow for working space.	Overgrown mixed shrubbery which would be improved with routine maintenance.
Group 8	Cherry laurel	28 at ground level - largest plant	Mature	5.5	Ground level	Ground level	5.5 - tallest	Good	10>	C 2	No action.	Recently partially reduced boundary screen.
11	Apple	22	Mature	3.5 north 3 east 5.5 south 5 west	2.7 west	1.8	5	Good	10>	C 2	No action or remove dead wood.	Pronounced trunk incline towards the south west. Large low limb to the north west. Previously heavily reduced at around 3.5 metres with small pockets of decay noted. Crossing branches and scattered dead wood.
12	Plum	14 & 14	Mature	3.5 north 3.5 east 3.5 south 3 west	2.3 north west	2.2	4.5	Good	10>	C 2	Remove dead wood.	Twin stemmed at 1.2 metres with a potentially weak / congested union. Suppression to the east. One stem grows towards the north west - the other to the south. Dead wood and stumps in lower crown.

Notes: Diameter at 1.5 metres refers to trunk diameter. Categories are as defined in BS 5837 (2012) - **A = High quality - B = Moderate quality - C = Low quality - U = Less than 10 years life expectancy - poor quality**. Crown height clearance / height to first branch = from ground level - Estimated remaining contribution = probable life expectancy as assessed at time of inspection. All measurements are approximate.

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13	Leyland cypress	57	Middle aged	3.5 north 5.5 east 6 south 4.5 west	2.2 north west	2.2	13	Good	20>	C 2	Reduce to an approximate height of 8.5 metres and rebalance remaining growth as necessary. Consider installing cable braces to support weak stem union or whole tree removal.	Large vigorous tree forming part of boundary screening. Main crown framework arises at between 2.3 & 3.7 metres with a potentially weak union between three largest stems. Partially suppressed to the north. Stubs in lower crown. Removal would benefit adjacent walnut.
14	Common walnut	78	Mature	9 north 7.5 east 6 south 6.5 west	4 north west	1.7	12	Good	20>	B 3	Pollard / reduce at an approximate height of 8 metres - reducing lateral growth to form a new smaller balanced crown of as near to natural an appearance as possible. Remove dead wood.	Old specimen tree with a lower trunk incline towards the north east and a large occluded trunk wound to the east at 2.5 metres. Upper crown incline towards the east. Large overlong limb to the north west has extensive decay at 2 metres from its attachment to the trunk and is vulnerable to failure. Main framework stem to the south east also has very significant decay at its base - rendering a large section of the crown highly vulnerable to failure. Further decay noted higher on same stem..

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15	Leyland cypress	44	Middle aged	2 north 3.5 east 3.5 south 2 west	2.2 east	2	11	Good	20>	C 2	Reduce to an approximate height of 6.5 metres and rebalance remainder as necessary.	Larger tree at the southern end of a row of the species which has two main stems arising at 2.2 metres with a potentially weak union. Suppressed to the north west.
16	Common walnut	51 at 0.6 m	Mature	2 north 4.5 east 11 south 0 west	1.5 south east	1.5	5.5	Poor	<10	U	Monitor condition.	Previously fallen towards the east. Main crown removed with <i>Ganoderma</i> fruiting bodies at cutting point. Low laterals form a severely unbalanced crown with growth towards the east and south east.
Group 9	Leyland cypress	21 & 16 - largest	Middle aged	3	0.2 south west	0.3	11 - tallest	Good	20>	C 2	Reduce to an approximate uniform height of 6.5 metres and rebalance remainder as necessary.	Close growing row which is located close the boundary and is drawn in nature due to mutual suppression and the proximity of a large walnut. Dead wood in lower crowns. Should be contained in size.
17	Leyland cypress	52	Middle aged	2.5 north 4 east 4 south 4 west	1.3 south west	1	13	Good	20>	C 2	Reduce to a height of approximately 7 metres and rebalance as necessary. Consider removal and replacement.	Two main stems with a weak union which is highly vulnerable to failure arise at between 2 & 3.3 metres and necessitate reduction works. Suppressed to the north west and south. Castlewellan cultivar.

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18	Leyland cypress	54	Middle aged	4 north 4 east 3.5 south 4 west	1.5 south east	1.4	13.5	Good	20>	C 2	Reduce to a height of approximately 7 metres and rebalance as necessary. Consider removal and replacement.	Two main stems arise at approximately 3 metres with a potentially weak union. Gap in upper canopy would suggest some recent subsidence in crown due to splaying stems. Partially suppressed to the south east. Containment works required. Castlewellan cultivar.
Group 10	Cherry laurel & Privet	16 - larger stem	Mature	3.5	Ground level	Ground level	4.5 - taller plants	Good	10>	C 2	No action or undertake routine hedge management.	Extensive boundary screen which is suppressed by adjacent trees.
Group 11	Hazel x 4	75 at ground level	Mature	4.5	Ground level	Ground level	5 - tallest	Good	20>	C 2	No action.	Small group of coppice stools which blend in well with surroundings. Will eventually require recoppicing. Ivy could be cut back or removed from some specimens.
19	Common walnut	11, 12, 10, 14 & 10	Young	3.5 north 4 east 4.5 south 3.5 west	3.7 west	3.5	7	Good	20>	C 2	No action.	Multi stemmed at ground level following previous coppicing. Densely ivy clad - preventing full inspection. Twisting stem form with a slight incline towards the north west.

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20	Lombardy poplar	77	Mature	5.5 north 4 east 3 south 4 west	0.4 south east	0.4	19	Good	20>	A 2	Reduce to an approximate height of 14 metres and rebalance as necessary.	Forms smaller part of a joint canopy with a similar tree to the south east and is partially suppressed as a result. Low secondary stems present to the north west and south east. Possible reaction growth on trunk at 1.7 metres. Slight incline towards the north west. Adjacent debris prevents full inspection.
21	Lombardy poplar	90	Mature	5 north 6 east 4.5 south 3.5 west	3 south west	3	22	Good	20>	A 2	Reduce to an approximate height of 14 metres and rebalance as necessary.	Grows close to previous tree and forms dominant part of joint canopy. Two main stems arise at around 1.9 metres with a potentially weak union which necessitates specified works. Well balanced crown with some suppression to the north west. Possible hollow sound in lower trunk area to the south east. Adjacent growth hinders inspection.
22	Common walnut	23	Young	6.5 north 7 east 3 south 3 west	3.8 north	3.6	6	Poor	<10	U	Monitor condition.	Poor specimen growing close to river bank and having a pronounced lean to the north east. Extensive trunk scar with associated decay on east side - probably following fire damage in the distant past. Monitor condition.

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23	Hazel	13, 11 & 12 - largest stems	Mature	4 north 5 east 4.5 south 2 west	Ground level	Ground level	4	Good	20>	C 2	No action.	Coppice tree / shrub with a partially fallen tree wedged in crown to the west.
Group 12	Leyland cypress x 4	13 & 26, 14, 12 & 25	Young	4.5	Ground level	Ground level	9 - tallest	Good	20>	C 2	No action.	Close growing row which have been planted for screening value. Will eventually require containment works.
24	Leyland cypress x 2	26 & 20	Middle aged	2.5	Ground level	Ground level	5	Poor	<10	U	Remove.	Two close growing trees that have fallen towards the east and continued to grow.
Group 13	Leyland cypress x 7	20 - largest stem	Young	35	0.5 north west	0.5	8.5	Good	10>	C 2	Remove partially fallen stem to north east of group.	Close growing screen planting which should have ideally been contained in size. Grows close to river bank which restricts growth in that direction. Tree to the north east of main group has partially failed at its root plate - further tree to the north east has a weak main stem union.
25	Leyland cypress	24 at 0.9 m	Middle aged	3.5 north 3 east 3 south 3 west	1 south west	0.6	8	Good	10>	C 2	No action.	Potentially surplus tree growing under canopy of large ash. Previously cut back below 1.5 metres - resulting in the development of a multi stemmed framework.

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26	Ash	75	Mature	7 north 8 east 7.5 south 9 west	3.5 north west	3.7	16.5	Good	20>	A 2	Reduce overlong laterals to the south east and south west - back to approximate main crown line and suitable side growth. Remove dead wood. Undertake a climbing inspection.	Large specimen tree with a broad crown that has overlong laterals to the south east and south west which are vulnerable to failure. Possible cavity on east side of main stem at around 7 metres. Slight incline towards the east. Occluded trunk wounds following crown lifting works.
27	Leyland cypress	21	Middle aged	3.5 north 2.5 east 2 south 3 west	1.4 south west	1.4	8	Good	20>	C 2	No action.	Slender / drawn tree growing under canopy edge of large ash. Suppressed to the south east. Congested secondary stem arising to the south west at 1.5 metres.
28	Leyland cypress	40	Middle aged	4 north 3.5 east 3.5 south 4 west	0.3 south east	0.3	9.5	Good	20>	C 2	No action.	Vigorous tree with two main stems arising at around 2 metres with branching below. Partially suppressed to the south.
29	Common walnut	20	Young	1.5 north 3.5 east 6. South 3.5 west	3.7 east	2.6	6.5	Good	30>	C 2	No action.	Edge tree with severe suppression to the north and an incline towards the south. Dead stub to the south at 2.8 metres.
30	English oak	17	Young	1 north 4 east 7 south 5 west	3.2 south west	2.6	5.5	Good	30>	C 2	No action.	Well established but unbalanced group tree with severe suppression to the north and an incline towards the south.

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31	Horse chestnut	24	Young	5 north 4.5 east 4 south 3.5 west	2.6 north west	0.7	6.5	Fair	20>	C 2	No action.	Potentially surplus tree forming part of boundary screening and severely suppressed to the north west.
32	English oak	24	Young	5.5 north 4 east 4.5 south 4 west	4.6 north west	4.5	9	Good	30>	C 2	No action.	Drawn group tree of fairly good future potential. Some minor scattered dead wood.
33	Ash	27	Young	5 north 4.5 east 4.5 south 4.5 west	4.8 north west	4	10	Good	30>	C 2 (est.)	No action.	Drawn tree growing on river bank and having a lean towards the north west - due to suppression to the south. Not possible to fully inspect.
34	English oak	24	Young	1 north 2 east 6 south 4 west	3.8 south east	3	9	Good	30>	C 2	No action.	Unbalanced group tree with suppression to the north and an incline towards the south west.
35	Ash	87	Mature	2 north 2 east 4.5 south 4 west	4	4.5	8	Poor	10>	C 2	Monitor condition.	Old and decaying ivy clad tree with two main stems at 2.2 metres. Pocket of decay to the north west at 2.2 metres and a large cavity below main junction to the south which renders the adjacent framework vulnerable to failure. Not possible to clearly view crown due to adjacent growth.

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36	Ash	37	Middle aged	6 north 4.5 east 5.5 south 5.5 west	3.8 south east	4.5	12	Good	20>	C 2 (est.)	Monitor condition.	Grows on edge of river bank and has a pronounced incline towards the north west - due to suppression to the south east. Large amount of scattered dead wood in lower / middle crown. Not fully inspected.
37	Ash	34, 31 & 16	Middle aged	7 north 4.5 east 4.5 south 6.5 west	3.5 north west	3	13	Good	20>	C 2 (est.)	Consider removing low splaying stem to the west. Monitor condition.	Close growing group of stems with two dominant that grow at edge of river bank - preventing full inspection. Densely ivy clad. Low limb splays over river to the west. More detailed inspection recommended.
38	Plum	14 & 11	Middle aged	4.5 north 3 east 3.5 south 3.5 west	2 north east	2.1	6.5	Good	10>	C 2	No action.	Understorey tree with two main stems at 0.2 metres. Stems cross at 2.2 metres. Scattered dead wood.
39	Myrobalan plum	33, 22 & 50 - largest stems	Mature	8 north 8 east 4 south 1.5 west	1.4 north	Ground level	5.5	Poor	<10	U	Remove or coppice.	Large specimen for the species which has extensive trunk decay with an opening to the west. Unbalanced towards the east. Previous large stem failure.

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40	Lawson cypress	10, 12 & 8	Middle aged	2 north 2 east 1.5 south 2 west	1.5 east	1.2	5.5	Good	10>	C 2	No action or remove.	Low quality tree with three congested stems arising at below 1.5 metres. Dead foliage in lower crown. Fallen limb wedged to the south.
41	English oak	19	Young	3 north 3.5 east 4 south 4 west	3 west	3	10	Good	20>	C 2	No action.	Very slender / drawn tree which appears to have lost its upper crown in the past and subsequently regrown with two competing upright regrowth stems.
42	Plum	23	Mature	4.5 north 4.5 east 3.5 south 4.5 west	2 west	3	6.5	Good	10>	C 2	No action.	Understorey tree with a trunk incline towards the north west. Side suppression.
43	Hawthorn	21 at 1.3 m	Mature	3 north 2.5 east 1.5 south 1.5 west	1.9	4	5	Poor	<10	U	No action.	Small ivy clad riverside tree with limited remaining live growth.
44	Leyland cypress	19	Young	2.5 north 2.5 east 2 south 1 west	0.6 east	0.6	9	Good	10>	C 2	No action.	Drawn riverside / group tree which should ideally be reduced or removed in the not too distant future.

Notes: Diameter at 1.5 metres refers to trunk diameter. Categories are as defined in BS 5837 (2012) - **A = High quality - B = Moderate quality - C = Low quality - U = Less than 10 years life expectancy - poor quality**. Crown height clearance / height to first branch = from ground level - Estimated remaining contribution = probable life expectancy as assessed at time of inspection. All measurements are approximate.

Clive Fowler Associates: Tree Survey at 61 Belmont Road, Twickenham, Middlesex.

No.	Species	Diameter @ 1.5 m (cm)	Age Class	Crown radius (m)	Height to 1st branch (m)	Crown height (m)	Height (m)	Condition / vitality	Estimated remaining contribution (years)	Category	Works	Notes.
45	Sycamore	80 at 1.2 m (est.)	Middle aged	7 north 6.5 east 5.5 south 4 west	1.7 north east	2	10	Good - fair	10>	C 2 (est.)	No action - in neighbouring ownership.	Congested multi stemmed framework forms at around 1.2 metres. Suppressed to the south west. Ivy establishing in main framework. Scattered dead wood - some medium diameter. Not fully inspected.
Group 14	Leyland cypress	22 - largest stem	Young	2.5	0.5	0.2	11 - tallest	Good	10>	C 2	No action.	Closely spaced boundary group with drawn main stems. Browning foliage in some trees. Should ideally be contained in size.
46	Plum	20, 24, 23, 9 & 18	Mature	4 north 2 east 5 south 5.5 west	0.5 south west	1.5	4.5	Good	10>	C 2	Reduce overlong laterals to the west by approximately 2 metres - cutting back to suitable side growth.	Dense ivy covers main stem and framework - preventing detailed inspection. Unbalanced crown leans to the west with overlong laterals appearing vulnerable to failure.
47	Plum	57 at 0.9 m	Mature	8 north 4.5 east 7 south 6 west	1.4 north west	1.5	6	Poor	<10	U	Pollard at 3.5 metres or remove.	Large tree for the species which has three large main crown framework stems with weak unions - one of which has failed and leans into another tree to the north west and renders remaining stems more liable to failure.

Notes: Diameter at 1.5 metres refers to trunk diameter. Categories are as defined in BS 5837 (2012) - **A = High quality - B = Moderate quality - C = Low quality - U = Less than 10 years life expectancy - poor quality**. Crown height clearance / height to first branch = from ground level - Estimated remaining contribution = probable life expectancy as assessed at time of inspection. All measurements are approximate.

Clive Fowler Associates: Tree Survey at 61 Belmont Road, Twickenham, Middlesex.

No.	Species	Diameter @ 1.5 m (cm)	Age Class	Crown radius (m)	Height to 1st branch (m)	Crown height (m)	Height (m)	Condition / vitality	Estimated remaining contribution (years)	Category	Works	Notes.
48	Plum	25 & 24	Mature	1.5 north 4.5 east 6.5 south 4.5 west	1 north	0.5	5.5	Good	10>	C 2	Crown reduce by approximately 25%. Remove dead wood.	Two weakly attached main stems arise at around 0.8 metres. Pronounced lean towards the south east. Limited growth to the north west. Overlong laterals grow low over neighbouring land. Ivy prevents full inspection.
49	Plum	33 at ground level (est.)	Mature	2 north 6.5 east 9 south 4 west	Ground level	Ground level	4.5	Poor	20>	C 2	No action or remove.	Previously fallen tree which has continued to grow.
Group 15	Holly, Cypress, Ash, Hazel, Laurel & Cherry	15 at 0.7 m - largest stem	Young - middle aged	3	Ground level	Ground level	5.5 - taller plant	Good (av.)	10>	C 2	Consider removing cypress.	Mixed boundary screening with a dying columnar cypress to its south west.
50	Cherry	33	Mature	5 north 6.5 east 5.5 south 5.5 west	4.2 south	3.6 (est.)	9	Fair - poor	10>	C 2 (est.)	Monitor condition.	Boundary tree forming its main crown framework at around 4 metres. Slightly sparse foliage for age and species. Location close to boundary and adjacent growth prevents full inspection.
51	Holly	17	Middle aged	2.5 north 2.5 east 2 south 3 west	2.2 north east	0.5	7.5	Good	20>	C 2	No action.	Group tree which has been reduced in the distant past at around 4.2 metres. Dead wood in lower crown.

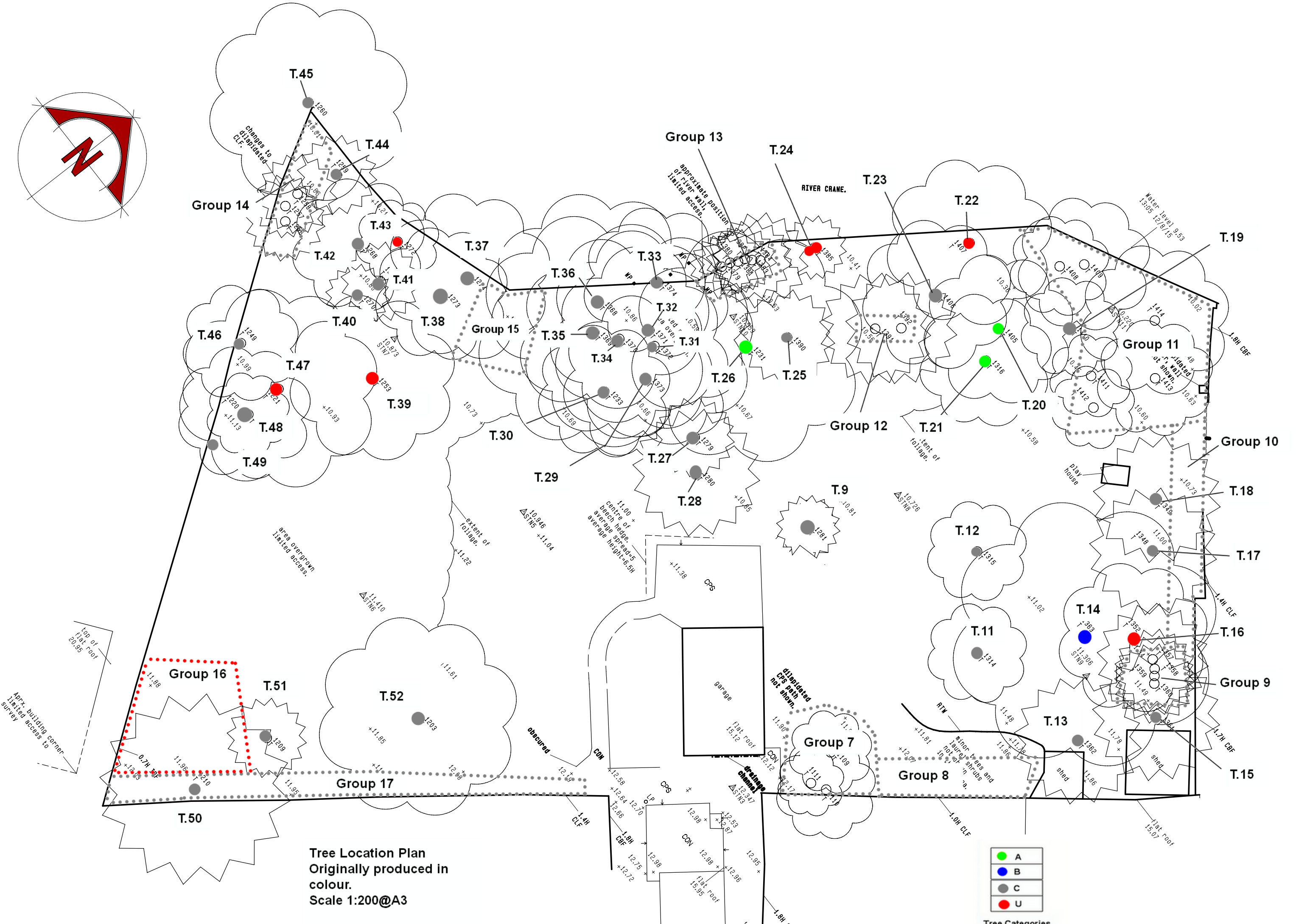
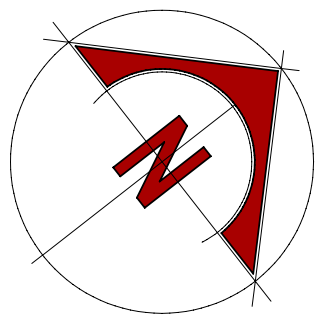
Notes: Diameter at 1.5 metres refers to trunk diameter. Categories are as defined in BS 5837 (2012) - **A = High quality - B = Moderate quality - C = Low quality - U = Less than 10 years life expectancy - poor quality**. Crown height clearance / height to first branch = from ground level - Estimated remaining contribution = probable life expectancy as assessed at time of inspection. All measurements are approximate.

Clive Fowler Associates: Tree Survey at 61 Belmont Road, Twickenham, Middlesex.

No.	Species	Diameter @ 1.5 m (cm)	Age Class	Crown radius (m)	Height to 1st branch (m)	Crown height (m)	Height (m)	Condition / vitality	Estimated remaining contribution (years)	Category	Works	Notes.
Group 16	Leyland cypress & Plum	18 - larger stem	Young	2.5	1.5	1.5	7.5	Fair / poor	<10	U	Remove dead / dying trees. Consider removal of group.	Slender trees with some dead cypress to the south west of group.
Group 17	Cherry laurel & Privet	19, 19, 16, 11 & 11	Mature	4.5	Ground level	Ground level	5	Good	10>	C 2	No action.	Extensive boundary screen which should ideally be contained in size.
52	Wild cherry	50	Mature	6 north 6 east 6.5 south 5 west	3.8 west	1.3	15	Fair	10>	C 2	Monitor condition.	Large tree with less than average foliage for its age and species. Previously heavily reduced / pollarded at 7.5 - 8 metres - creating large wounds. Sunken area at base to the east may indicate a girdling root. Appears to have been suppressed to the west in the past. Closely monitor condition.

Notes: Diameter at 1.5 metres refers to trunk diameter. Categories are as defined in BS 5837 (2012) - **A = High quality** - **B = Moderate quality** - **C = Low quality** - **U = Less than 10 years life expectancy - poor quality**. Crown height clearance / height to first branch = from ground level - Estimated remaining contribution = probable life expectancy as assessed at time of inspection. All measurements are approximate.

Appendix 'b'
Tree Locations.



Tree Location Plan
Originally produced in colour.
Scale 1:200@A3

Tree Categories.	
● (Green)	A
● (Blue)	B
● (Grey)	C
● (Red)	U

Appendix 'c'
Recommended Root Protection Areas

Clive Fowler Associates : Recommended Root Protection Areas (Radius) at 61 Belmont Road, Twickenham, Middlesex.

Tree No	Species	Recommended Distances for Root Protective Areas (Metres).	Comments.
9	Lawson cypress	2	
Group 7	Cherry laurel, Privet, Yew, Holly & Euonymus	3.25	Cut back or remove where necessary to allow for working space.
Group 8	Cherry laurel	3.5	
11	Apple	2.75	
12	Plum	3.25	
13	Leyland cypress	7	
14	Common walnut	9.5	
15	Leyland cypress	5.5	
16	Common walnut	6.25	
Group 9	Leyland cypress	3.25	
17	Leyland cypress	6.25	
18	Leyland cypress	6.5	
Group 10	Cherry laurel & Privet	2	
Group 11	Hazel x 4	9	Based on measurement at ground level - a much smaller RPA would be required in practice.
19	Common walnut	3.25	
20	Lombardy poplar	9.25	
21	Lombardy poplar	11	
22	Common walnut	3	
23	Hazel	2.5	
Group 12	Leyland cypress x 4	3.25	
24	Leyland cypress x 2	n/a	Remove - partially fallen.
Group 13	Leyland cypress x 7	2.5	
25	Leyland cypress	3	
26	Ash	9	
27	Leyland cypress	2.75	
28	Leyland cypress	5	
29	Common walnut	2.5	
30	English oak	2.25	
31	Horse chestnut	3	
32	English oak	3	
33	Ash	3.25	

Note 1. Root Protection Area Radii are shown in ¼ metre graduations. Note 2. It should be emphasised that the above relates to the distance from the centre of the tree to protective fencing.

Note 3. With appropriate precautions, temporary site works can occur within the protected area, e.g. for access for scaffolding (see BS 5837 - 2012).

Note 4. N/a = not applicable.

Clive Fowler Associates : Recommended Root Protection Areas (Radius) at 61 Belmont Road, Twickenham, Middlesex.

Tree No	Species	Recommended Distances for Root Protective Areas (Metres).	Comments.
34	English oak	3	
35	Ash	11	Poor condition.
36	Ash	4.5	
37	Ash	6	
38	Plum	2.25	
39	Myrobalan plum	7.75	Poor condition.
40	Lawson cypress	2.25	
41	English oak	2.5	
42	Plum	3	
43	Hawthorn	2.75	Poor condition.
44	Leyland cypress	2.5	
45	Sycamore	10	
Group 14	Leyland cypress	2.75	
46	Plum	5.25	
47	Plum	7	Poor condition.
48	Plum	4.25	
49	Plum	4	Previously fallen tree.
Group 15	Holly, Cypress, Ash, Hazel, Laurel & Cherry	2	
50	Cherry	4	
51	Holly	2.25	
Group 16	Leyland cypress & Plum	2.25	
Group 17	Cherry laurel & Privet	4.25	
52	Wild cherry	6	

Note 1. Root Protection Area Radii are shown in ¼ metre graduations. Note 2. It should be emphasised that the above relates to the distance from the centre of the tree to protective fencing.

Note 3. With appropriate precautions, temporary site works can occur within the protected area, e.g. for access for scaffolding (see BS 5837 - 2012).

Note 4. N/a = not applicable.

Appendix 'd'
Extracts from BS5837: 2012

Extracts from BS5837: 2012.

6.2 Barriers and ground protection

6.2.1 General

6.2.1.1 All trees that are being retained on site should be protected by barriers and/or ground protection (see **5.5**) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed (see **6.2.3**).

6.2.1.2 Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on the extent of the soft landscaping shown on the approved drawings.

6.2.1.3 The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.

6.2.1.4 Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate (see also **8.8.1**).

6.2.1.5 It should be confirmed by the project arboriculturist that the barriers and ground protection have been correctly set out on site, prior to the commencement of any other operations.

6.2.2 Barriers

6.2.2.1 Barriers should be fit for the 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.

6.2.2.2 The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in Figure 2. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

6.2.2.3 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority. For example, 2 m tall welded mesh panels on rubber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the

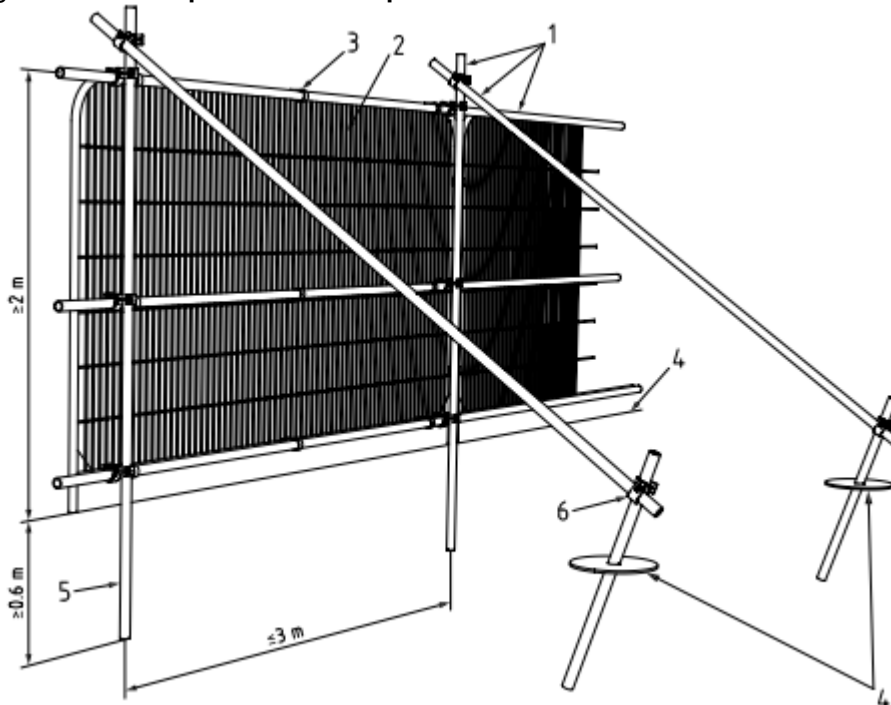
fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (Figure 3a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

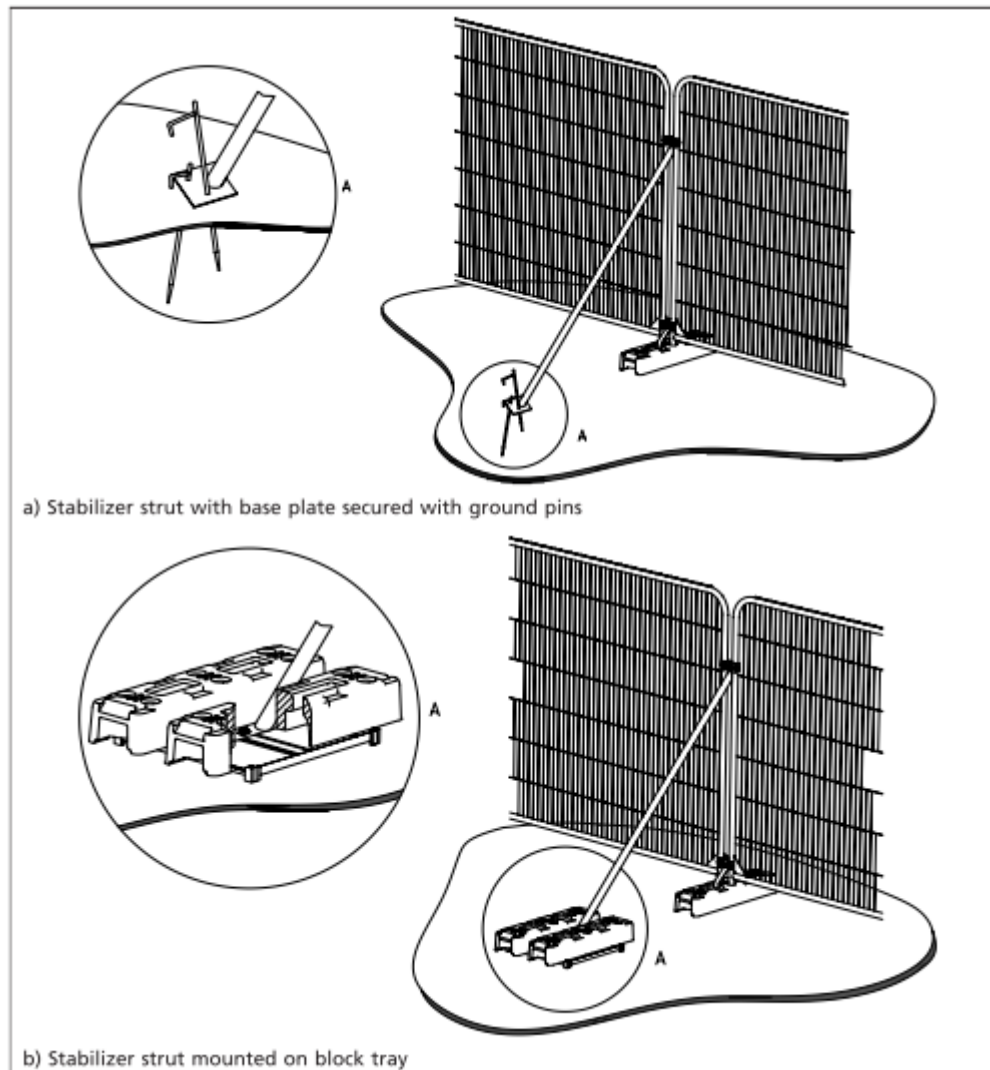
Figure 2 Default specification for protective barrier



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

Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

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. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

c) for wheeled or tracked construction traffic exceeding 2 t 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.

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see **6.1**).

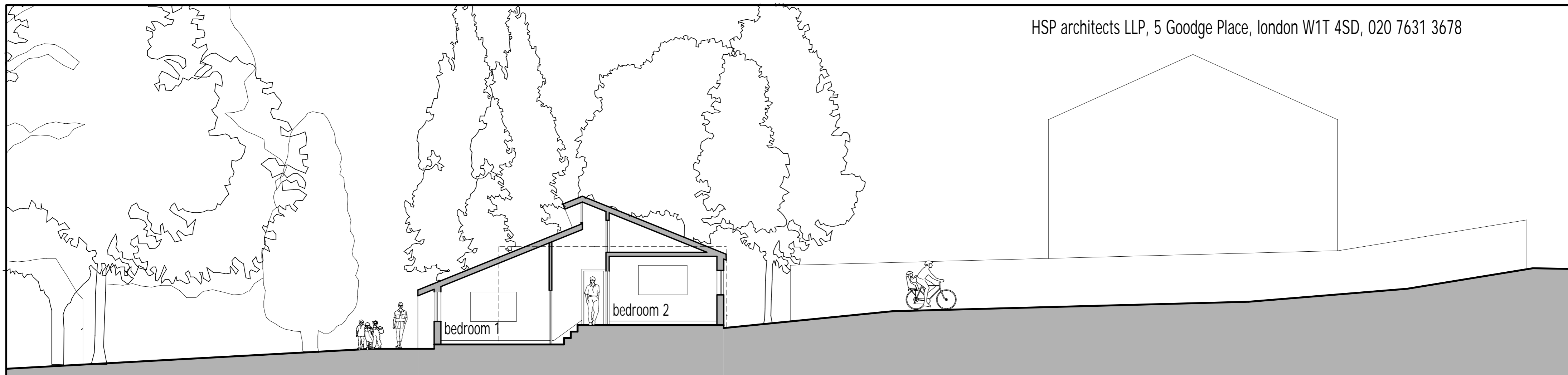
6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Appendix 'e'
Table 1 from BS5837: 2012

Table 1 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	<ul style="list-style-type: none"> 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 the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>			See Table 2
	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	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
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	See Table 2
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	See Table 2

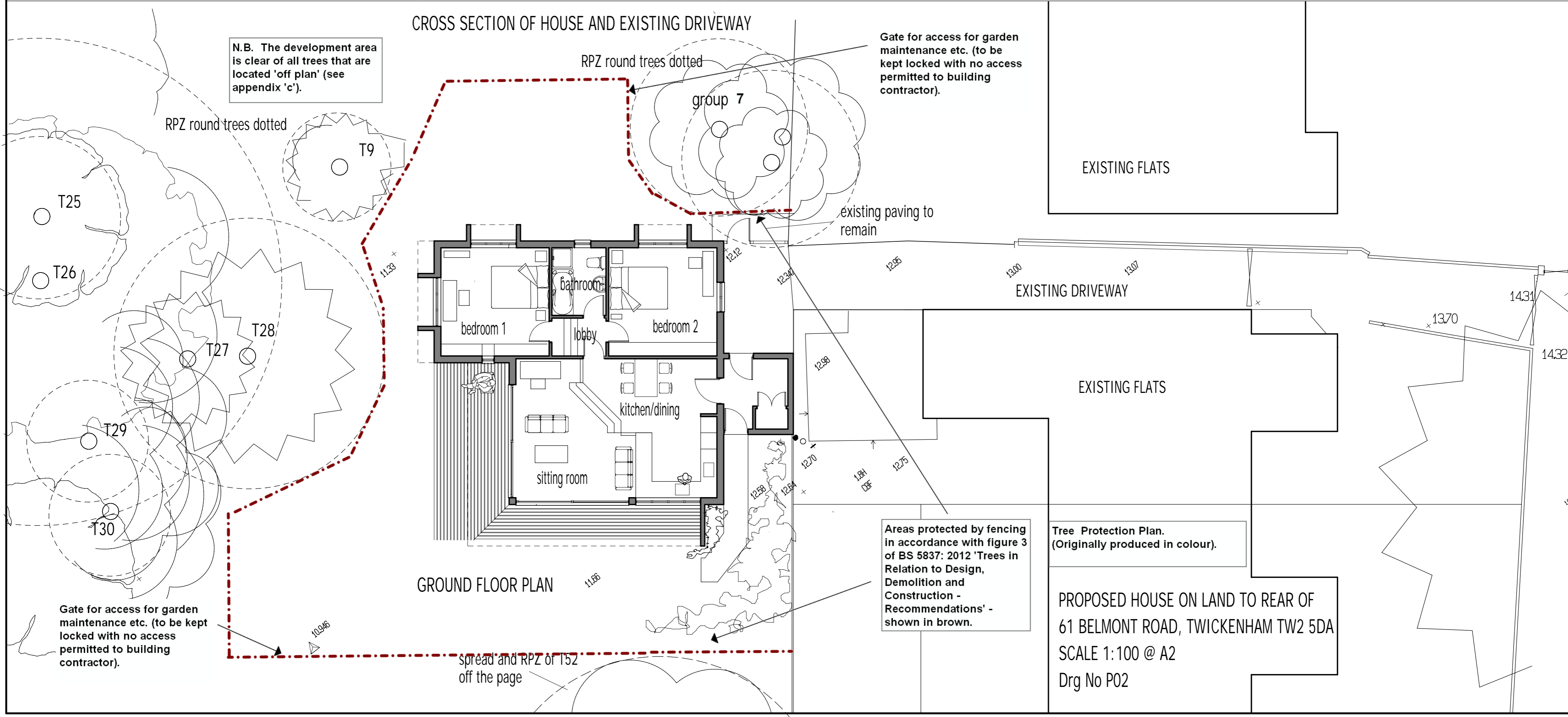
Appendix 'f'
Tree Protection Plan.



CROSS SECTION OF HOUSE AND EXISTING DRIVEWAY

N.B. The development area is clear of all trees that are located 'off plan' (see appendix 'c').

Gate for access for garden maintenance etc. (to be kept locked with no access permitted to building contractor).



RPZ round trees dotted

RPZ round trees dotted

group 7

existing paving to remain

EXISTING DRIVEWAY

EXISTING FLATS

EXISTING FLATS

GROUND FLOOR PLAN

Areas protected by fencing in accordance with figure 3 of BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' - shown in brown.

Tree Protection Plan. (Originally produced in colour).

PROPOSED HOUSE ON LAND TO REAR OF 61 BELMONT ROAD, TWICKENHAM TW2 5DA
SCALE 1:100 @ A2
Drg No P02

Gate for access for garden maintenance etc. (to be kept locked with no access permitted to building contractor).

spread and RPZ of T52 off the page