Land north of Station Road,

Wombwell,

Phase 2 Pre-development Arboricultural Report

prepared at the request of

Mr A Joshi

On behalf of

Hartwood Estates Ltd

28 October 2019

By

Ian Kennedy

Wharncliffe Trees and Woodland Consultancy

Summary

I have been instructed by Mr A Joshi of Benell Ltd to carry out a pre-development tree survey of the significant trees on land north of Station Road, Wombwell on behalf of Hartwood Estates Ltd as shown on Plan 1.

The location and spread of 22 individual trees and groups of trees, together with one woodland are recorded on Plan 1 that shows the existing layout. Table 1 records their species, dimensions, age, life expectancy, categorisation and root protection areas. This information was collected, interpreted and recorded in accordance with BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*.

Plan 1 also shows the root protection areas (RPA) that would be required for each tree or group necessary to protect them if they were to be retained as part of development. The woodland numbered 17 on Plan 1 is growing on neighbouring land.

The vast majority of the trees on the site are small, insignificant and unimportant trees in arboricultural terms. Most are self seeded trees growing on made ground which is either hardcore or a bund. Most of these trees are less than 150mm in diameter. It is only above this size that the British Standard (5837:2012) considers trees to be important.

The only planted trees on the site are the poplars along the eastern boundary (Trees 6 and 8 to 15) and four Leyland cypress trees (Group 19 and Tree 21). These are however still regarded are unimportant trees.

All of the trees on the site are included in the lowest retention category (C).

The woodland numbered 17 has been included in the second highest retention category (B) for its contribution to the local landscape.

Most of the trees in the interior of the site would need to be removed to accommodate the proposed layout. The trees that could be retained are mainly around the boundary. These are Trees 3, 4, 5, 6, 8 to 15, 20 and 22. The woodland numbered 17 would be unaffected but would cast significant shade on the neighbouring property.

Contents

1.0 Introduction

1.1 Instruction

I have been instructed by Mr A Joshi of Benell Ltd to carry out a pre-development tree survey of the trees on land north of Station Road, Wombwell on behalf of Hartwood Estates Ltd.

The tree survey is intended to provide a structured, impartial assessment of the tree population within the proposed development area.

The survey is intended to be informative to all stages of the development process and was carried out in accordance with *BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations.*

1.2 Documents and Information Provided

I was provided with the following documents:

Topographical survey plan Drawing No. RL/303/SP by HH Surveys Ltd.

Red line plan of the site. Drawing No. PO8:4141:02 Rev A by JRP Associates

Proposed Planning Layout Drawing No. PO8:4141:01 by JRP Associates

1.3 Limitations

This report is concerned only with assessing the condition of the trees, their importance in the local landscape and any cultural and conservation values.

It takes no account of the affects the trees may have on the soil, such as heave where trees are removed or shrinkage where trees are retained.

Trees are dynamic organisms influenced by weather, pests and diseases. Therefore, this report can only remain valid for a period of 24 months.

Any works around the trees such as trenching, pruning, storage of materials and trafficking that has not first been approved by a suitably qualified arboriculturalist will invalidate this report.

No decay detection equipment was used to gather information on the condition of the trees.

All survey and inspection was completed at ground level.

2.0 Site Visit and Observations

2.1 Site Visit

The site visit took place on 11 March 2019. All dimensions were taken using recognised methodology and arboricultural measuring equipment, unless otherwise stated.

The weather at the time of inspection was dry and sunny with good visibility. Winds were light.

2.2 Brief Site Description

The site is located to the north of Station Road and east of Stonnyford Road, Wombwell, Barnsley, at Ordinance Survey grid reference SE 4048 0366.

The site is an old industrial site where all buildings have been demolished leaving much of the site as made ground with hardcore.

The significant trees are growing around the perimeter of the site and on neighbouring land to the north and northwest. The interior of the site has self seeded trees growing on the made ground to 1m tall.

2.3 Development Proposals

The proposed development of the site includes construction of 152 dwellings across the site as a combination of semi-detached and terraced homes as well as flats, together with associated parking areas, public open space and some office accommodation.

2.4 Tree Observations

All trees within the site of the proposed development were inspected in detail. Information on their size, condition and retention category is included in Table 1 below.

2.5 Locations of the Trees

The positions of most of the significant trees were provided to me on a topographical survey of the site. Some of the significant trees were not included on the topographical survey and none of the young self-seeded trees were included. The positions of the unplotted trees and groups are shown approximately.

Table 1. The Tree Survey

Tree number	Species	Height (M)	Stem diameter (DBH in MM)	Branch spread (M)	Ht first branch above GL* (M)	Ht of canopy above GL (M)	Life stage	Vitality	General observations on the tree's condition	Estimated life in years	Category
1	Group of 3 goat willow and 1 silver birch	10.0	<360	North – 3.5 South – 5.2 East – 4.0 West – 4.5	GL	1.0	Juvenile mature to mature	Normal	A small group of multi-stemmed goat willow and one silver birch. The trees are in good health with no significant defects but are insignificant.	20+	C (2)
2	Group of goat willow, silver birch and hawthorn	<10.0	<300	North – 3.0 South – 3.0 East – 3.0 West – 3.0	GL	1.0	Juvenile mature to mature	Normal	A large group of probably self seeded mature, multi-stemmed goat willow and young silver birch and hawthorn trees. The trees are forming a thicket area. They are in good health but are insignificant. Most are under 150mm diameter.	20+	C (1)
3	Hawthorn	5.0	250#	North – 3.0 South – 3.0 East – 3.0 West – 3.0	1.0	1.0	Mature	Normal	A small insignificant tree growing on the boundary of the site. May originally have formed part of a boundary hedge. The stem is significantly ivy covered.	20+	C (1)
4	Hawthorn	7.0	210, 210, 350	North – 4.0 South – 4.0 East – 4.0 West – 4.0	1.2	1.8	Mature	Normal	A small insignificant tree growing on the boundary of the site. May originally have formed part of a boundary hedge. There are a few small pruning wounds that are not	20+	C (1)

									occluding or decaying. These are minor defects.		
5	Hawthorn	5.0	210	North – 3.0 South – 3.0 East – 3.0 West – 3.0	2.0	2.0	Mature	Normal	A small insignificant tree growing on the boundary of the site. May originally have formed part of a boundary hedge. There are a few small pruning wounds that are not occluding or decaying. There is a long bark wound to the main stem that is occluding. These are minor defects.	10+	C (1)
6	Poplar	10.0	370	North – 3.2 South – 4.5 East – 3.5# West – 3.5	4.5	1.5	Juvenile mature	Normal	A well formed, young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)
7	Group of ash and sycamore	5.0 – 8.0	<200	North – 2.5 South – 2.5 East – 2.5 West – 2.5	2.0	2.0	Juvenile mature	Normal	A long linear group of young self-seeded trees growing on the bund along the eastern boundary of the site. The trees are insignificant.	40+	C (1)
8	Poplar	10.0	360	North – 3.0 South – 4.0 East – 4.0# West – 4.0	3.0	4.0	Juvenile mature	Normal	A well formed, young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)
9	Poplar	10.0	320 & 210	North – 4.0 South – 2.8 East – 4.0# West – 3.0	2.0	4.0	Juvenile mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)
10	Poplar	10.0	500	North – 2.5 South – 5.0 East – 4.0 West – 4.0	2.0	4.0	Juvenile mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)

11	Poplar	10.0	450	North – 3.0 South – 3.5 East – 6.0# West – 4.0	1.5	4.0	Juvenile mature	Normal	A well formed, young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)
12	Poplar	10.0	550	North – 5.0 South – 5.0 East – 6.0 West – 4.0	1.0	5.0	Juvenile mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as insignificant in landscape terms.	20+	C (1)
13	Poplar	14.0	530	North – 5.0 South – 5.0 East – 7.0# West – 6.0	1.0	5.0	Young mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as a fairly insignificant tree in landscape terms.	20+	C (1)
14	Poplar	14.0	610	North – 4.0 South – 4.0 East – 6.0# West – 7.0	2.0	4.0	Young mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as a fairly insignificant tree in landscape terms.	20+	C (1)
15	Poplar	14.0	510	North – 8.0 South – 3.0 East – 5.0# West – 5.0	2.0	4.0	Young mature	Normal	A well formed, relatively young tree on the boundary of the site with no significant defects. Regarded as a fairly insignificant tree in landscape terms.	20+	C (1)
16	Group of goat willow and silver birch	<12.0	<200	North – 3.0 South – 3.0 East – 3.0 West – 3.0	GL	GL	Juvenile mature	Normal	A linear group of widely spaced, self-seeded trees. The trees are young, small and insignificant.	20+	C (1)
17	Woodland of poplar and silver birch	<14.0	<350	North – N/A South – N/A East – 3.0 West – N/A	1.0	1.0	Young mature	Normal	A woodland area is growing on neighbouring land that marginally overhangs the boundary. The trees are young and apparently in good health but inspection was limited to the application site.	20+	B (2)

18	Group of alder and goat willow	<7.0	<100	North – 2.0 South – 2.0 East – 2.0 West – 2.0	GL	GL	Young	Normal	A thicket of very young self seeded trees growing on hardcore. The trees are insignificant.	10+	**C (1)**
19	Group of 3 Leyland cypress	12.0	300, 300 & 340	North – 2.5 South – 2.5 East – 2.5 West – 2.5	0.2	2.0	Young mature	Normal	Three trees growing closely together, possibly planted originally as a hedge. Fire at the base of two has resulted in significant bark damage.	10+	**C (1)**
20	Group of 3 goat willow	<7.0	<200	North – 3.0 South – 3.0 East – 3.0 West – 3.0	GL	GL	Mature	Normal	A small group of multi-stemmed goat willows. The trees are in good health but are not significant in landscapes terms.	20+	**C (1)**
21	1 x Leyland cypress and 1 Leyland cypress stump	10.0	380	North – 2.0 South – 2.0 East – 3.0 West – 2.0	4.0	4.0	Mature	Normal	An unattractive tree of poor form. It has no significant defects but has no value.	20+	**C (1)**
22	Group of goat willow and silver birch	<7.0	250	North – 3.0 South – 3.0 East – 3.0 West – 3.0	GL	GL	Juvenile mature to Mature	Normal	A linear group of small trees that are in good health but are insignificant in landscape terms.	20+	**C (1)**
23	Group of elders	4.0	<200	North – 2.0 South – 2.0 East – 2.0 West – 2.0	0.2	0.2	Mature	Normal	A group of mature but small elder shrubs. They can't be describes as trees.	10+	**N/A**

GL – Ground Level # - Estimated

2.6 Hedges and other vegetation

Poplar, silver birch, hawthorn, goat willow and alder trees are regenerating naturally across the site. Most are between 1 and 3m tall. These are growing in areas of hardcore.

There are areas of dogwood and buddleia shrubs towards the southern part of the site towards Station Road.

None of these trees and shrubs are significant in any way and have only become established because the site is not currently managed.

3.0 Interpretation of Information and References

My interpretation and appraisal of information gathered from the survey is based on experience of tree species, visual risk hazard assessment and the guidance set out in BS5837:2012 *Trees in Relation to Design, Demolition, Construction – Recommendations*. My qualifications and experience in arboriculture are included in appendix 1.

3.1 BS5837:2012 Tree Retention Categories

All trees have been assessed and assigned a category in accordance with Table 1 of the standard. A copy of Table 1 is included as Appendix 2. This categorisation is intended to rank trees according to their importance in terms of quality, health, life expectancy, amenity and landscape value, together with wildlife and cultural importance. This ranking assists in determining the suitability and appropriateness of trees for retention in any development. Categories A to C are those considered for retention, 'A' being highest. Category 'U' trees are those not suitable for retention because of impaired condition.

Generally category A and B trees should be given more consideration in layouts that category C trees as these are considered more valuable because of their condition, landscape value, future life expectancy or, on occasions because of their more favourable habitat value.

3.2 Below Ground Constraints; Root Protection Areas (RPAs)

The root protection area is the area of land considered necessary for trees should they be retained as part of any development. This is calculated using the stem diameter measured at 1.5 metres from ground level. This protection area is shown diagrammatically as a circle centred on the base of the tree where it is expected that rooting has not been impeded in any one direction and where disturbance has not taken place. See Plan 1. Where rooting has been impeded or disturbance taken place then the shape and size of the root protection area is modified according to an assessment of where rooting is likely to take place.

Where trees are to be retained, it is optimal to locate structures and services outside the RPA. However, where incursion becomes necessary, technical solutions may be possible to limit damage, areas lost can be compensated elsewhere, or the soil environment can be improved. In these circumstances an arboricultural method statement will be necessary to

ensure that works are undertaken sympathetically and do not damage the below ground parts of the trees.

The RPA of Tree 1 has been offset to the north to take account of the unfavourable rooting conditions to under the wall and highway to the south.

3.3 Above Ground Constraints; Crown Spreads

Ideally, working areas and construction will be out with the crown spreads of trees to be retained. However where access by high sided vehicles and machinery for construction or erection of scaffolding is necessary within the crown spreads of trees to facilitate development an arboricultural method statement will be necessary to ensure pruning works are carried out sympathetically prior to construction works commencing.

Any permanent development within the canopy spread of a tree will also require a method statement. However, the effects of shade and other perceived inconveniences of trees this close to property should also be considered, together with the future growth potential of the trees and the maintenance obligation this will bring.

3.4 Conception and Design

The constraints imposed by trees should assist with site design and layout, together with the other competing needs of development. Generally the trees in the higher categories (A and B) should be given greater consideration in any layout than the lowest retention category (C).

As well as the footprint of buildings, the provisions of services, infrastructure layout and the access space required for construction itself should be considered.

4.0 Arboricultural Impact Assessment and Method Statement

4.1 Arboricultural Impact Assessment

Trees unaffected and that could be suitably retained

Trees 3, 4 and 5 could be retained but are small and insignificant. These would be on the boundary of gardens.

The woodland numbered 17 is growing on neighbouring land and would be unaffected. Whilst the woodland would be unaffected it will cast heavy shade on the nearby property. The woodland is growing at an elevated position to the west of the development. This will restrict light significantly to these properties and is likely to be a source of complaints from residents. A layout that keeps dwellings away from the woodland edge would be preferable.

Groups 20 and 22 on the western boundary would be unaffected.

Trees that could be retained but that would require careful removal of the bund.

Trees 6 and 8 to 15 could be retained within the gardens and open space of the proposed layout. However, the existing bund on site would need to be carefully removed to ensure no damage was done to the trees. These are from a large growing species and are not ideally suited to small domestic gardens in any case.

Trees that cannot be retained within the proposed layout

The following trees and groups could not be retained within the proposed layout either because the trees are within the footprint of dwellings, roads and other infrastructures or because a significant part of their root protection areas would be affected. These are:
1, 2, 7, 16, 18, 19, 21 and 23.

4.2 Arboricultural Method Statement

If trees 3, 4, 5, 6 and 8 to 15, 20 and 22 are to be retained then I recommend that tree protective fencing is erected at the positions shown on plan 3. In the case of Trees 6 and 8 to 15 the fencing should be erected following removal of the soil bund. The bund should be removed down to original ground level only.

There would be no need to erect specific tree protection fencing on the edge of woodland 17 provided the missing sections of the site boundary fence are replaced.

4.3 Relevant Industry Standards and Codes of Practice

The main arboricultural industry standards and codes of best practice relevant to the planning and execution of this project are:

- BS 5837 (2012) – Trees in relation to construction – Recommendations;
- BS 3998 (2010) – Tree Work – Recommendations; and
- National Joint Utilities Guidelines, Volume 4 – NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) (www.njug.org.uk)

4.4 General Precautions

The following general precautions should ensure the health and longevity of any retained trees. They should be enforced during the construction phase within the RPAs of retained trees and under its canopy.

- All work will be carried out in accordance with a current risk assessment.
- All proprietary materials will be installed in accordance with their manufacturer's instructions and a current risk assessment.
- All equipment and tools will be used in accordance with their manufacturer's instructions and a current risk assessment.
- No storage of materials or fuel.
- No bonfires within 10m of the outer edge of the crown or RPA of a tree.
- No refuelling of mechanical equipment.
- No mixing of cement.
- No washing of cement mixers.
- No raising the soil level without the agreement of the Local Planning Authority (LPA).
- No excavations without the agreement of the LPA.
- Only operate or park vehicles and plant if the soil is suitably protected, as agreed by the LPA.
- The guidance contained within the National Joint Utilities Group Volume 4 (Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2, 2007); http://www.njug.org.uk/) will be followed when installing underground services within the rooting areas of retained trees. To minimise potential damage to tree roots excavations will be carried out by a pneumatic excavation lance.
- No materials will be dumped or stored within the RPA of a tree or under its canopy, whether in a skip or directly on the ground, unless the ground is suitably protected against contamination and compaction.

4.5 Services

No details have been provided for the installation of additional underground services.

If any underground services are to be routed through the RPAs of retained trees then they will be installed in accordance with the NJUG guidelines.

5.0 Conclusions

- The vast majority of the trees on the application site are small, insignificant in arboricultural terms having self seeded since the site has been unused and unmanaged.

- Most of these trees are below 150mm stem diameter, the minimum size that the British Standard (BS5837:2012) considers to be important.

- All of the trees on the application site have been included in the lowest retention category (C).

- The woodland on neighbouring land (17) has been included in the second highest retention category because of the contribution it makes to the local landscape. This would be unaffected by the proposals. However, the proposed properties close to the woodland boundary would be heavily shaded by the woodland.

- Most of the trees around the boundary could be retained if desired.

- The trees in the interior of the application site would need to be removed to accommodate the proposals.

6.0 Legal Considerations

Protected trees

No checks have been made with the Local Planning Authority for Tree Preservation Orders, other planning conditions or inclusion of the site in a Conservation Area. However, if any of the trees subject to this report are protected it will be necessary to apply to the local planning authority (LPA) for permission before any work, other than certain exempted operations, can be carried out.

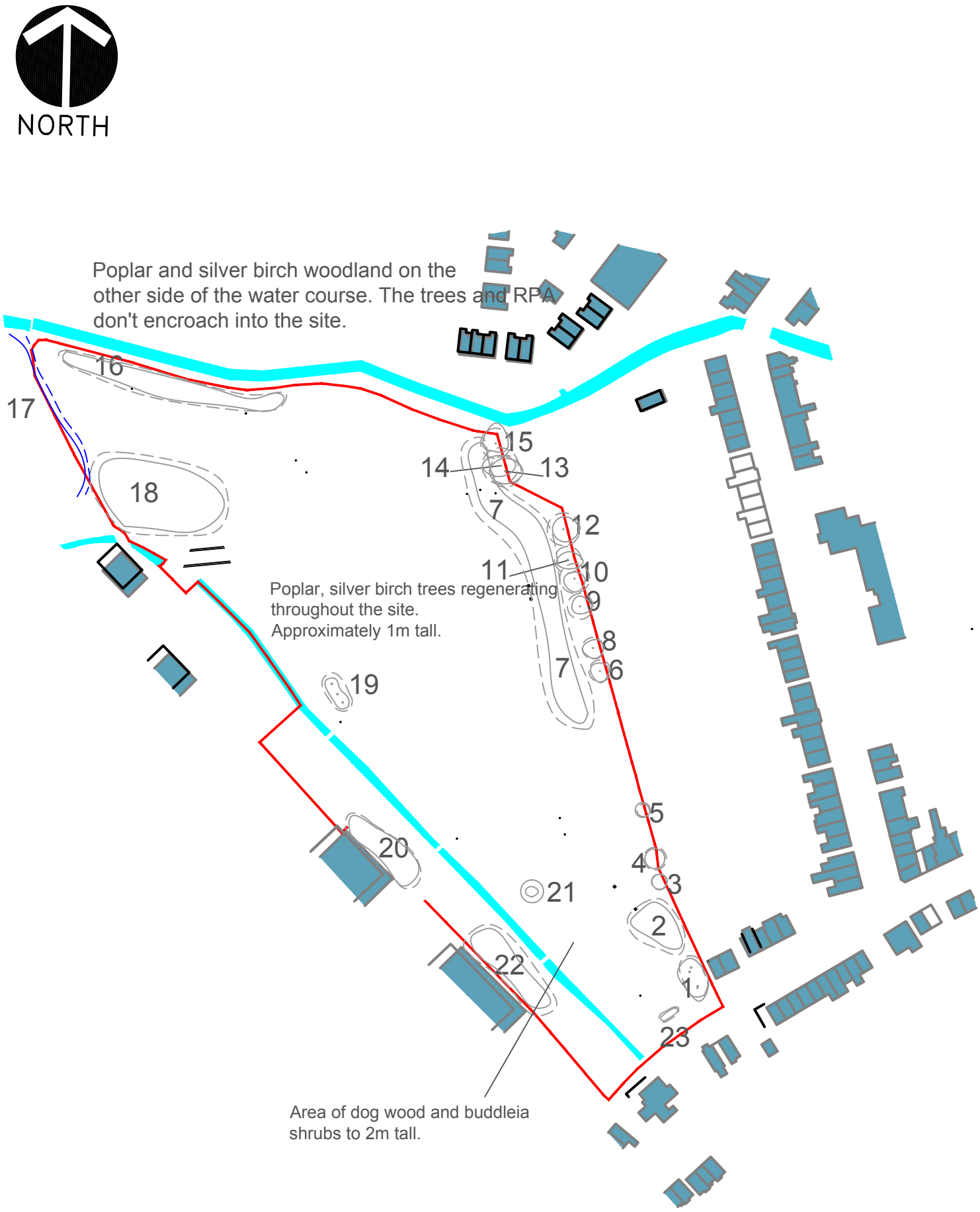
Wildlife conservation legislation

Breeding birds are protected, together with bats and their roosts, whether their roosts are in use or not.

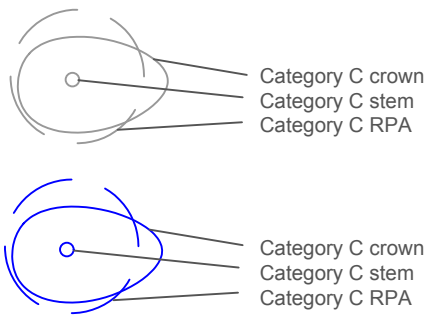
Some of the larger trees may have some features useful to bats for roosting, particularly summer roosts such as loose bark and small cavities in structural branches.

Consideration should be given to the presence of protected species prior to any proposed tree removal or maintenance. This will include breeding birds, principally between March and August, and bats at any time of year.

Tree surgeons should also be aware of their duties under legislation to protect wildlife and carry out their site assessment and work accordingly.



Plan 1. Tree Constraints Plan showing the existing layout.



NORTH

Poplar and silver birch woodland on the other side of the water course. The trees and RPA don't encroach into the site.

Area of dog wood and buddleia shrubs to 2m tall.

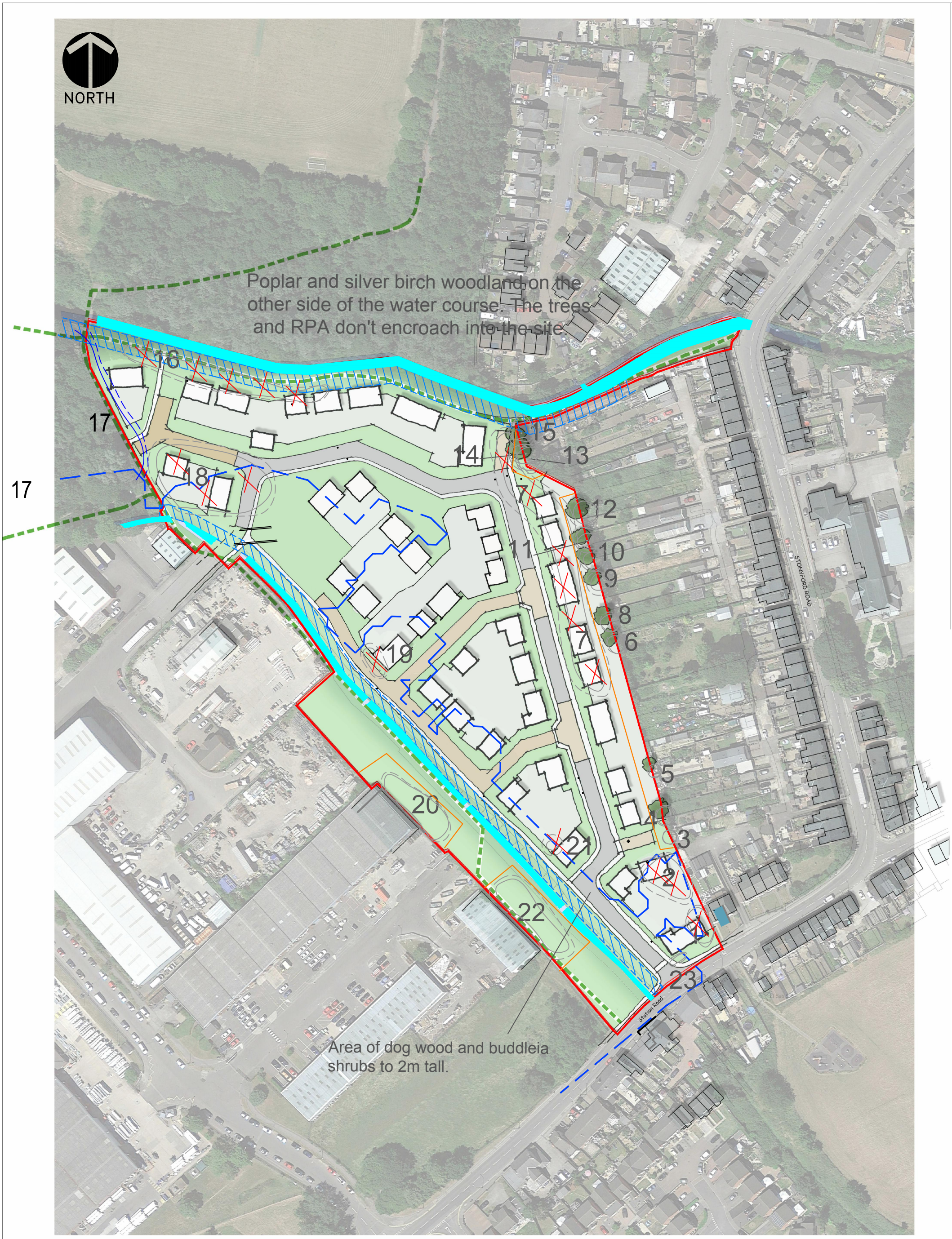
STONYFORD ROAD

Station Road

Plan 2. Tree Constraints Plan showing the proposed layout

Category C crown
Category C stem
Category C RPA

Category C crown
Category C stem
Category C RPA



Plan 3. Tree Protection Plan showing the proposed layout

Category C crown
Category C stem
Category C RPA

Tree to remove

Tree protective fencing

Category C crown
Category C stem
Category C RPA

Appendix 1.Qualifications and Experience of Ian Kennedy

1. Qualifications

Ian graduated from the Scottish Agricultural College in August 1995 with a Higher National Diploma in Horticulture (HND) with Distinction.

In 1998 Ian graduated from the University of Aberdeen with a BSc (Hons) Upper second class in Forestry with Arboriculture and Amenity Forestry.

He passed the LANTRA Professional Tree Inspection examination in 2006.

In 2009 his application to become a professional member of the Arboricultural Association was assessed to fulfil all the necessary requirements and he became a professional member of the Association that year.

In 2011 he passed the final examination of the Institute of Chartered Foresters and become a member of that institute in January 2012.

2. Practical experience

Presently Ian is working in private practice as an independent arboricultural and woodland management consultant undertaking tree conditions surveys, pre-development tree surveys to the BS5837:2012 standard, mortgage reports and woodland management planning works. Clients range from home owners and farmers to architects, building companies, local authorities, schools and larger development companies.

Prior to private practice Ian held a number of positions in local government. Firstly he was the arboriculturalist within a planning office in Essex. Ian gained considerable experience regarding trees in relation to development, in particular BS 5837.

Development work formed the core of his duties and applications ranged from small back garden developments to major schemes such as the redevelopment of Ministry of Defence land for private residential development. Ian also undertook all functions associated with

Tree Preservation Orders (TPOs), including the making of new TPOs, assessing suitability of applications to work on protected trees and trees in conservation areas.

Ian went on to manage a 500 hectare woodland estate for a local authority in South Yorkshire that included a mix of urban and rural woodlands. This included preparation and implementation of detailed management plans for multipe use woodlands. He undertook all aspects of silvicultural management from marking to contract tendering and monitoring. He also managed the access, conservation, landscape and archaeological requirements of the estate. Ian was directly involved in the estate achieving Forest Stewardship Council certification in 2003 and personally ensured continued certification.

Ian has worked extensively with Forestry Commission to obtain the necessary licences for management works and ensured the estate benefited fully from the full range of grants available.

Latterly at the same authority Ian went on to manage the trees and woodlands unit, having overall responsibility for management of the authority's tree and woodland stock and associated staff, together with delivery of other tree related services such as those associated with the Town and Country Planning Acts.

3. Continuing professional development

Ian regularly attends meetings, seminars and training events hosted by The Arboricultural Association. Institute of Chartered Foresters, Royal Forestry Society and Forestry Commission and benefits from the respective journals, briefings and newsletters available to members of the first three of the organisations listed.

4. Relevant experience

Ian Kennedy has spent 19 years working with trees, including as the arboricultural advisor to planning officers for a Local Planning Authority and manager of a trees and woodlands unit for another local authority with overall responsibility for trees, including in relation to the Town and Country Planning Acts.

Appendix 2. Tree Retention Categories

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	• 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			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 3. Explanatory notes for terms used in this report

- **Compass Bearing:** N = north; S = south; E = east; W = west;
- **Age Class:** Assessed as either:
    - Young = a size which could be easily transplanted;
    - Semi-mature = prior to seed bearing age and could be transplanted with care;
    - Young Mature = early maturity, not fully grown but of seed bearing age and may have achieved mature height;
    - Mature = fully grown, annual growth is much reduced;
    - Old Mature = old for the species, possibly starting to decline;
- **Trunk Diameter:** These figures relate to the diameter of the trunk at a given distance above ground level and are recorded in centimetres measured with a diameter tape.
- **Estimated size:** #
- **Health:**
    - Normal Vitality = normal growth and twig extension;
    - Moderate Vitality = reduced twig extension but other than that few signs of ill-health;
    - Early Decline = reduced twig extension and some dead twigs in the outer canopy;
    - Mid-decline = small internodes, the canopy may be thinning and contain dead twigs and/or branches in the outer canopy, older branch wounds that haven't occluded may be decaying and forming cavities;
    - Severe Decline = sparse crown, numerous dead twigs and branches in the outer canopy, older branch wounds likely to be decaying and forming cavities;
    - Dead.
- **Structural Condition**
    - Acute stem union = a weak union between two or more stems at the main forking point caused by the formation of reaction wood. Mechanical pressure at the forking point increases as secondary thickening occurs increasing the risk of failure at that point.
    - Acute branch union = the same principle as acute stem unions but between a stem and a branch or two branches rather than 2 main stems.

Appendix 4. Tree Protection Barriers from BS5837: 2012

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).

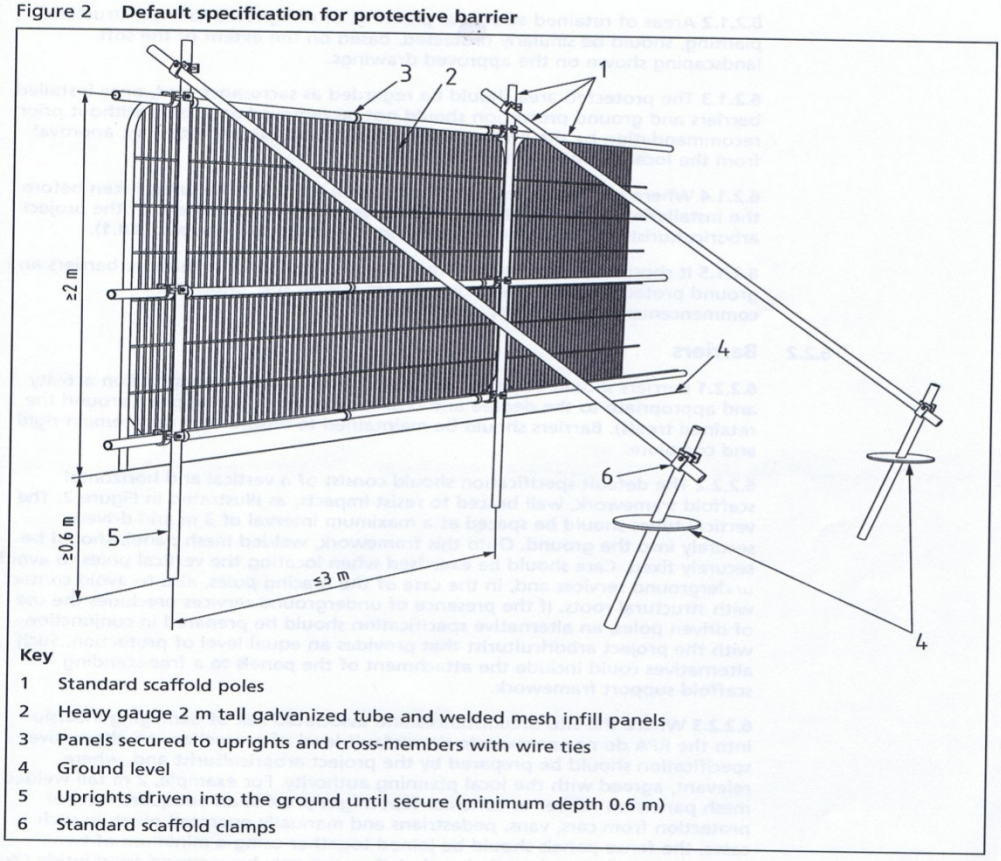
NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

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".

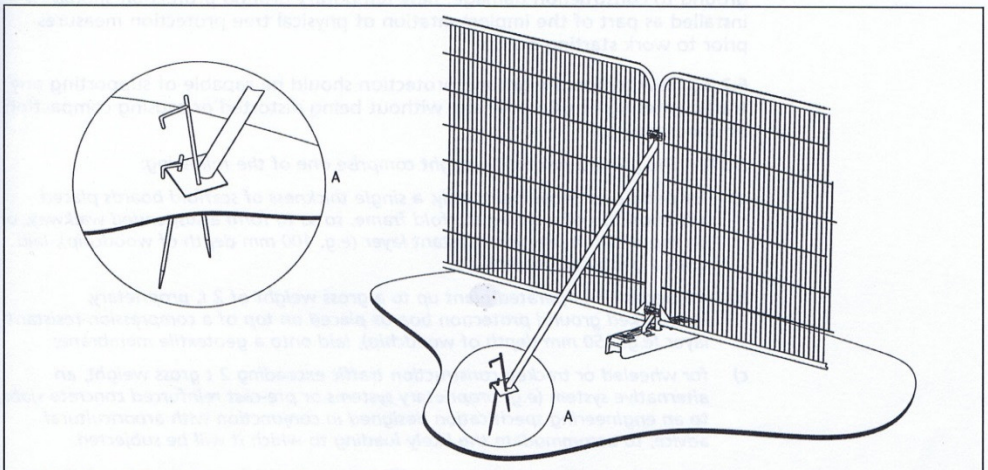
Figure 2 **Default specification for protective barrier**



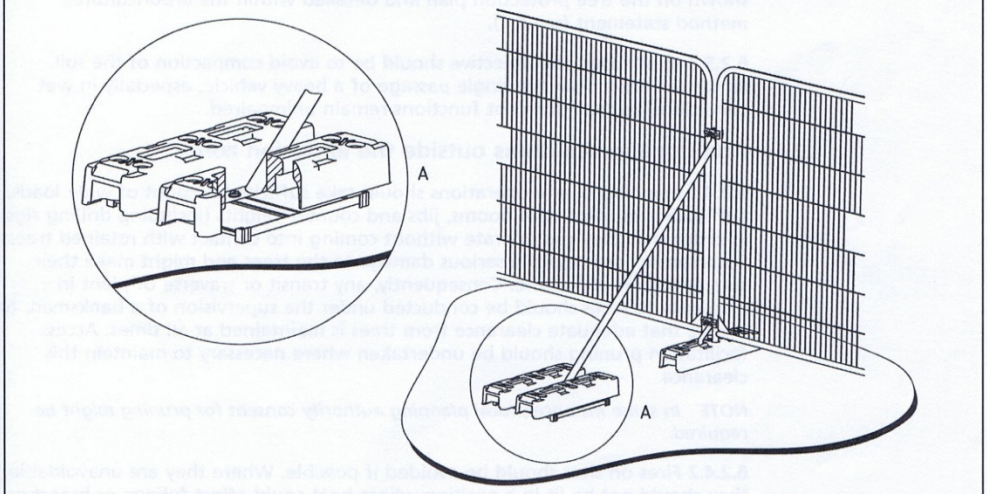
Key

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**



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

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.

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