

BS5837:2012 Tree Survey
Land off Surfleet Road
Pinchbeck
South Holland
Lincolnshire
NGR TF24479 26600

Survey by
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1. Introduction

1.1 Site Description and Location

The site surveyed comprises a roughly rectangular parcel of agricultural land situated on the east side of Surfleet Road, Pinchbeck, South Holland, Lincolnshire centred at NGR TF24479 26600. The location of the site is shown on the plan within **Figure 1** and an aerial photograph has been provided within **Figure 2** to place the site in context.

The site lies within South Holland and is not within a designated Conservation Area. Assessment of the site area using the South Holland District Council Public Webmap geographic information system has not identified any Tree Preservation Orders associated with Surfleet Road on or in close proximity to the area surveyed.

In order to facilitate an application to obtain permission to develop the area surveyed the Applicant has requested a BS5837 (2012) Tree Survey should be completed to assess the quality of the trees within and close to the boundary of the field and the impact any development may have on these. An inspection of the site was completed on 27 November 2021. A photographic record of the trees at the site is included within the report.



Figure 1: Site location.

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1.2 Neighbouring Land Uses

The defined site area comprises a cultivated field which has been annually cropped and is in current agricultural / horticultural use. It has a large commercial glasshouse to the rear (east) separated from the site by a drainage channel and a line of mature trees. To the north and south are residential houses and gardens. On the opposite side of Surfleet Road which runs along the western boundary of the field is a line of residential houses. The survey area has a number of

mature and semi-mature trees and hedgerows around the field boundaries but no features at all within the field interior. The survey area appears to have been agricultural land since records began.



Figure 2: Site Contextual Aerial Photograph

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In undertaking the tree survey the assessment has been carried out in accordance with the specifications contained within BS 5837 Trees in Relation to Design, Development and Construction (2012). An inspection of the site and the immediate surrounding areas was completed by Christopher Barker, dipHort, CEnv, an experienced arboricultural consultant and licensed bat worker.

2. Tree Survey Appraisal Methodology

2.1 Survey Objectives

This tree survey has been carried out with the objective of:

- Identifying the individual tree species present at the site by means of visual inspection;
- To define the approximate age, condition and canopy spread of all individual mature and semi-mature trees identified and the value of these within the development context;
- To identify any trees that present a risk to existing or proposed foundations or other structures that may be constructed on the site and recommend action to remove this risk; and
- Recommend tree management / mitigation measures where appropriate.

The survey broadly assessed the condition and arboricultural value of the trees lying in or adjacent to the site area, paying attention to any mature individual trees present within or adjacent to the site area in order to prepare an assessment in accordance with BS 5837 Trees in Relation to Design, Development and Construction (2012).

2.2 Survey Methodology

The methodology set out below is a summary of the suggested approach to tree assessment as described in British Standard 5837:2012.

Trees have been broadly assessed based on guidance set out within the British Standard BS 5837:2012 'Trees in Relation to Design, Development and Construction'. This standard provides recommendations and guidance on the principles to be applied to achieve successful integration of development with trees, shrubs and hedgerows.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site.

Category (A): Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years).

Category (B): Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years).

Category (C): Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm.

Category (U): Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. These include any trees in such poor condition that they cannot be retained in the context of the current land use for more than 10 years. They are for this reason not considered as being significant within the planning process.

Species have been recorded by common and scientific name. Height has been estimated in metres and stem diameter measured in centimetres unless impractical, taken at a height of 1.5 m from the base of the tree.

The overall condition of any individual tree, or group of trees, has been referred to using one of the definitions listed below. A more detailed description of condition has been noted in the Tree Schedule.

- G **Good:** A sound tree or trees needing little, if any, attention
- F **Fair:** A tree or trees with minor but rectifiable defects or in the early stages of stress, from which it may recover
- P **Poor:** A tree or trees with major structural and physiological defects or stressed such that it would be very expensive and inappropriate to retain
- D **Dead:** A tree or trees no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are becoming or have become dangerous

The survey was completed from ground level only. Aerial inspections were not undertaken. Evaluations of tree conditions given within this assessment apply to the date of survey and cannot be assumed to remain unchanged, and it may be necessary to review these within 24 months, in accordance with good arboricultural practice.

2.3 Site Plans & Tree schedules

The position of significant individual trees or groups of trees measured out on the site is shown on the Tree Location Plan **Figure 3**. Within the summary table (**Appendix 1**) a calculated corresponding radius of the circle for each RPA has been calculated. The Root Protection Areas are formulated to assist when designing layouts in relation to trees and the calculated RPAs in Appendix 1 should be used to inform the design layout of this site. Following the initial inspection a conceptual development plan was prepared and this has been used to show the constraints and tree protection measures within **Figure 4**.

3. Tree Survey Findings

3.1 Survey Details

The tree inspection took the form of a walkover inspection completed by Christopher Barker dipHort, CEnv. Each individual semi-mature or mature tree of significance that could be impacted by any proposed new development within the survey area was identified, visually inspected and classified. The character of the trees at the site is shown in photographs contained within this section.

3.2 Mature and Semi-Mature Trees

A total of three individual trees, one significant tree group and three boundary hedgerows have been identified and assessed as part of the tree survey.

Hedgerows H1 and H2 run along the western boundary of the survey area screening the field from Surfleet Road. There is a significant gap between the two hedgerows and there are minor gaps within each. However, the majority of the hedgerow lengths are uniform and continuous. Both hedgerows have been seasonally box trimmed and have been placed into Category C2.



Hedgerow H1



Hedgerow H1



Hedgerow H2

Thuja T3 is positioned on the southern boundary of the site growing on a strip of land between the boundary fence and the shallow drainage channel that runs along the boundary of the cultivated field. It is presumably within the field ownership as it lies outside the garden fence which it is quite close to. This is a tree of good quality which has been placed into Category B. However, there may be a possibility of nuisance in the future if this tree causes damage to the adjacent property boundary fencing. **Damson T4** is a young tree situated within the garden of the property to the south and the crown of the tree is visible above the garden fence but appears to have been trimmed back. This tree is placed into Category C.



Thuja T3



Damson T4

Situated further to the south within the garden interior set back from the field boundary is **Poplar T4**. This is a tree of reasonable shape and moderate size, the canopy of which does not extend across the garden boundary and encroach the site area surveyed. This tree is visible from the site and has been placed into Category B.



Poplar T5

The most significant group of trees in the area surveyed is **Group G6** which comprises a long line of Alder. These trees are within the land adjacent to the field surveyed, separated from this by a boundary drainage ditch. The trees are lined along the opposite side of this close to the edge of the drain and form a long, continuous canopy along this boundary effectively screening the glasshouses situated to the east. The trees are of good quality and appear to be of similar stature and age. The drainage ditch may be a partial constrain to rooting on the western side but the calculated RPA of this group, based on the trunk diameter of the largest trees, will extend across the field boundary and the canopy extents of the trees does extend across the field edge. This group is placed within Category B2.



Alder G6 along eastern boundary



Alder G6 along eastern boundary



Drainage channel and Group G6



Drainage channel and Group G6

Hedgerow H7 is a uniform box trimmed Beech hedge running along the boundary of the garden adjacent to the northern boundary of the field. This is a good quality hedgerow providing effective screening to the residential garden and it is placed within Category B.



Hedgerow H7

Figure 3A - Tree Category Plan (North)

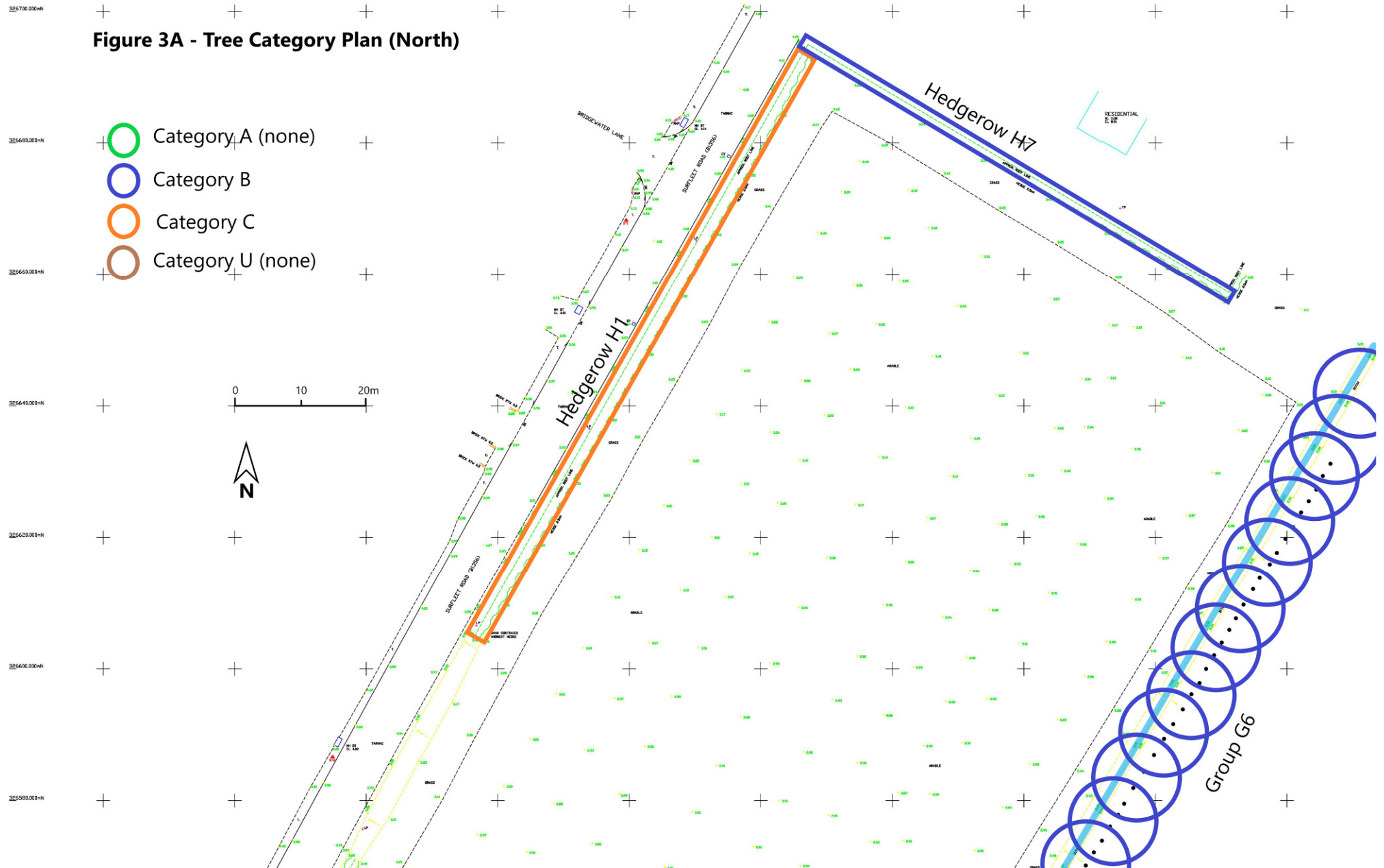


Figure 3b Tree Category Plan (south)

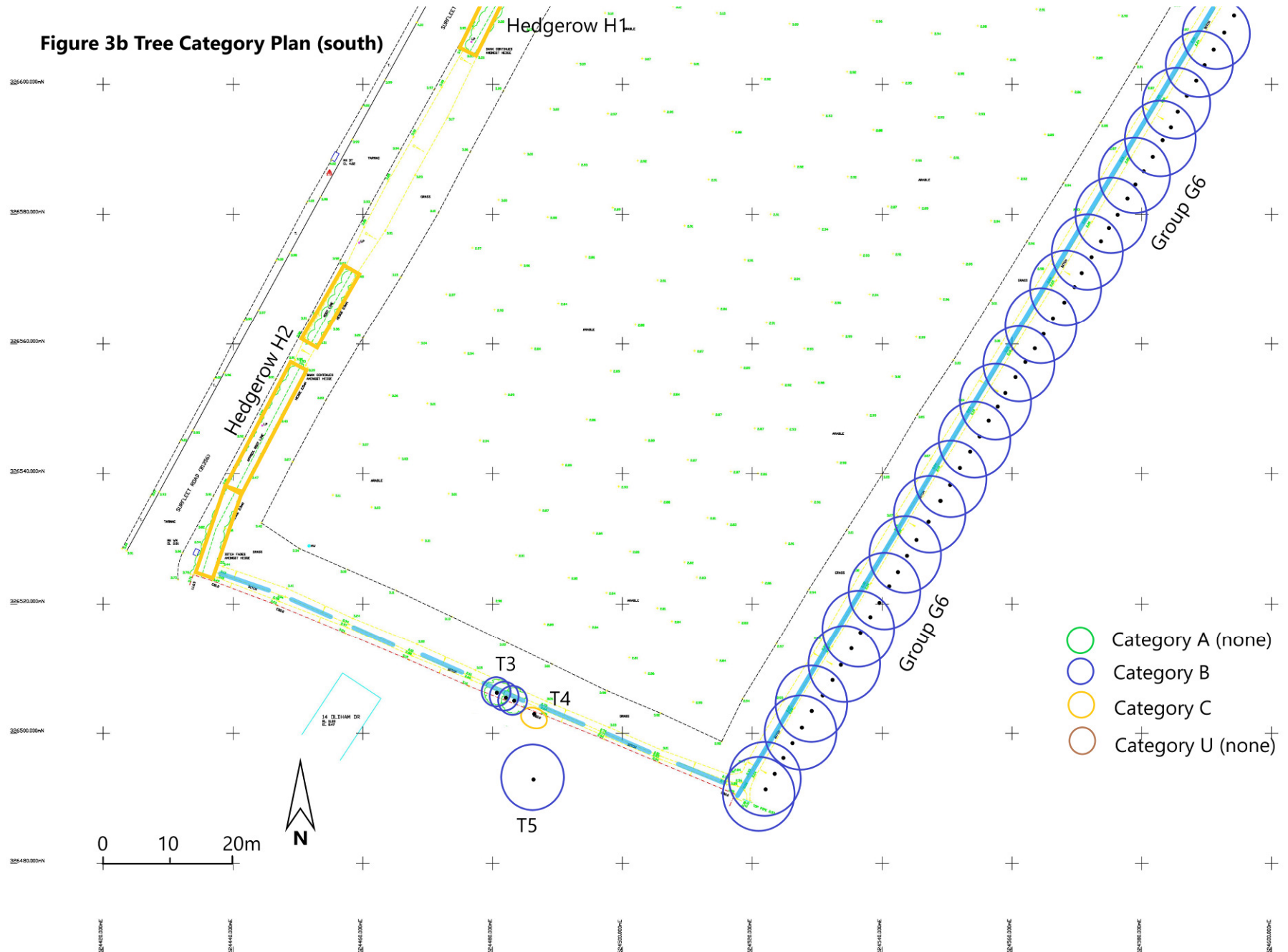


Figure 4 - RPA Plan



4. Tree Management

4.1 Initial Arboricultural Assessment

In the context of this site the proposed development will comprise residential houses situated within the interior of the field with a new access from Surfleet Road as shown in **Figure 4**. The table below summarises the potential impact of the proposed development on the trees present within the area surveyed based on this conceptual development plan.

Ref	Tree	Category	Impact of development
H1	Hawthorn, Rose, Privet	C2	Presumably removed as it is not shown on the development plan.
H2	Hawthorn, Elm	C2	Presumably removed as it is not shown on the development plan.
T3	Thuja	B2	Not shown on the development plan. If this tree is retained the RPA extends into a landscaped area close to the proposed surface water attenuation area and can be protected by fencing.
T4	Damson	C2	This tree lies within an adjacent garden. The canopy poses no constraint. The RPA does not extend into the landscaped area within the site and poses no constraint.
T5	Poplar	B2	This tree is situated within an adjacent garden and the canopy and RPA do not extend into the proposed development area and pose no constraint to development.
G6	Alder	B2	The RPA and canopy of this tree group extend into the field and will lie within the edge of the residential gardens or landscaped area. The RPA of this group will have to be protected by fencing but does not pose a constrain to development based on the plan provided. Lying along the eastern edge of the development these trees will cast shade during the morning period but this will reduce towards midday.
H7	Beech	B2	This hedgerow lies outside the proposed development area and poses no constraint to development.

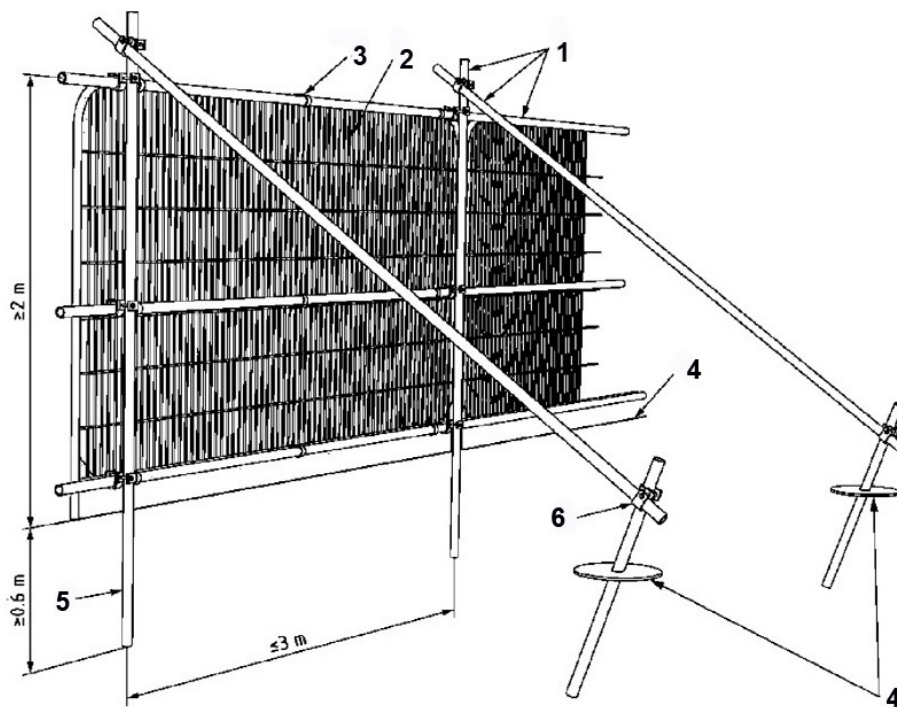
4.2 General Recommendations

The hedgerows and trees being retained along the boundaries of the site, some within the adjacent land outside the field boundaries will need to be adequately protected during any approved development works where the canopies or calculated root protection areas extend across the field boundary. As a general rule at this site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to Design, Development and Construction (2012). Prior to any construction or development work proceeding, the RPAs of individual trees to be retained should be marked out using the distances provided in the table within Appendix 1.

Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below.

- All trees retained adjacent to the site should be protected by barriers or ground protection around the calculated Root Protection Area (RPA) and as indicated on any Tree Constraints Plan (TCP) that may be produced in association with the assessment.
- Any fencing required should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor.

- Arrangements should be made for an arboriculturalist to supervise works and tree protection where trees are particularly vulnerable or sited close to access points.
- Pre-development works may be undertaken prior to the installation of fencing with the agreement of the local planning authority.
- All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on site and be inspected annually (where overall condition requires) or every 2 years and after any major storm events, with safety a priority.
- Fencing should be clearly visible and suitable for the location, type and proximity of construction activity.



1. Standard scaffold poles
2. Heavy Gauge 2m tall galvanised tube and weld mesh infill panels
3. Panels secured to uprights and cross members with wire ties
4. Ground Level
5. Uprights driven into ground until secure (up to 0.6m)
6. Standard scaffold clamps

- It may be appropriate on some sites to use temporary site offices as components of the protection barriers.
- Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas this may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems.
- Once areas around trees have been protected by fencing, any works on the remaining site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area.

- Wide or tall loads etc. should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc. where this is in close proximity to retained trees.
- Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837 (2012). Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.
- It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above. To firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
- In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development.



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Appendix 1: BS5837 Tree Schedule

Key:	Measurements	Age – Class	Overall Condition	BS 5837 2012 : Cascade Chart for Quality Assessment/Retention Category	Symbols:
	MS – Multi-stemmed	YNG-MAT-Young Mature	G – Good	A – High	< = less than
	Ht - Height in metres	SM – Semi-mature	F – Fair	B – Moderate	~ = approximately
	Stem – Stem Diameter at 1.5m in mm	Mat – Mature	P – Poor	C – Low	> = greater than
	Crown – Crown spread in metres	OM – Over mature	D – Dead	U – Trees of negligible significance	
	TD - Trunk division (height in metres)	Est Yrs – estimate of years remaining (>40 years; 20 –40 years; <20 years)		Sub-categories: 1 = mainly arboricultural values 2 = mainly landscape values 3 = mainly cultural values.	

RPA = Root protection area (equivalent to a circle with a radius 12 x the stem diameter for single stem trees and 10 x the basal diameter for trees with more than one stem arising below 1.5m above ground level).

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
H1	Hawthorn Rose Privet	1.5	<150	N-1 S-1 E-1 W-1	0	SM	10+	G	Box trimmed hedgerow dominated by Hawthorn. Some gaps present along the road frontage but generally uniform. No structural faults visible from ground level	Maintain as a box trimmed hedge to maintain screening of the site area	C2	1.8
H2	Hawthorn Elm	2	<150	N-1 S-1 E-1 W-1	0	SM	10+	G	Box trimmed hedgerow dominated by Hawthorn with significant sections of Elm. Some gaps present along the road frontage but generally uniform. No structural faults visible from ground level	Maintain as a box trimmed hedge to maintain screening of the site area	C2	1.8
T3	Thuja <i>Thuja sp</i>	10	<450	N-4 S-4 E-4 W-4	1	M	20+	G	Three merging trees situated adjacent to the boundary fence on the opposite side of the drainage ditch. Dense ivy on the trunks and canopy extending over the field edge. No structural faults visible from ground level	If retained the ivy should be removed from the trunks and provide protection to the crown and RPA.	B2	5.4
T4	Damson <i>Prunus domestica</i>	5	150 150	N-1 S-2 E-2 W-2	1	Y	10+	F	Two trunks supporting an irregular canopy which has been trimmed on the north side. No structural faults visible from ground level	None	C2	2.5

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T5	Poplar <i>Populus nigra</i> <i>cul</i>	11	400est	N-4 S-4 E-4 W-4	2	SM	20+	G	Single trunk supporting a balanced upright canopy which does not extend to reach the field boundary. No structural faults visible from ground level	None	B2	4.8
G6	Alder <i>Alnus glutinosa</i>	10-14	<400	Varies up to 5m on the west	1	SM	20+	G	A dense line of Alder planted behind the boundary drainage channel but with the merging canopy extending across this over the edge of the field area survey. This screen planting shelters to the glasshouses to the east. No structural faults visible from ground level	Protect the canopy and RPA where this extends across the site boundary.	B2	4.8
H7	Beech <i>Fagus sylvatica</i>	2	<150	N-1 S-1 E-1 W-1	0	Y	20	G	Dense trimmed boundary hedgerow around the residential garden adjacent to the field. No structural faults visible from ground level	Protect the RPA where this extends across the site boundary.	B2	1.8