



Arboricultural Report

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Tyn Y Coed
Poveys
Glyntraian
Wrexham
SY10 7NU

*For the purpose of dealing with all tree issues in accordance with
BS5837:2012 Trees in Relation to design, demolition and
construction: Recommendations for a development at the site*

Commissioned by:

Gareth Edwards
DPA

Surveyed by:

David Bailey
BSc (hons), M.Arbor.A, cert.Arb.(RFS)

Survey date:
12th August 2017

Report date:
21st August 2017

Wrexham County Borough Council Planning Reference:

P/2017/0475



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1 Qualifications and Experience

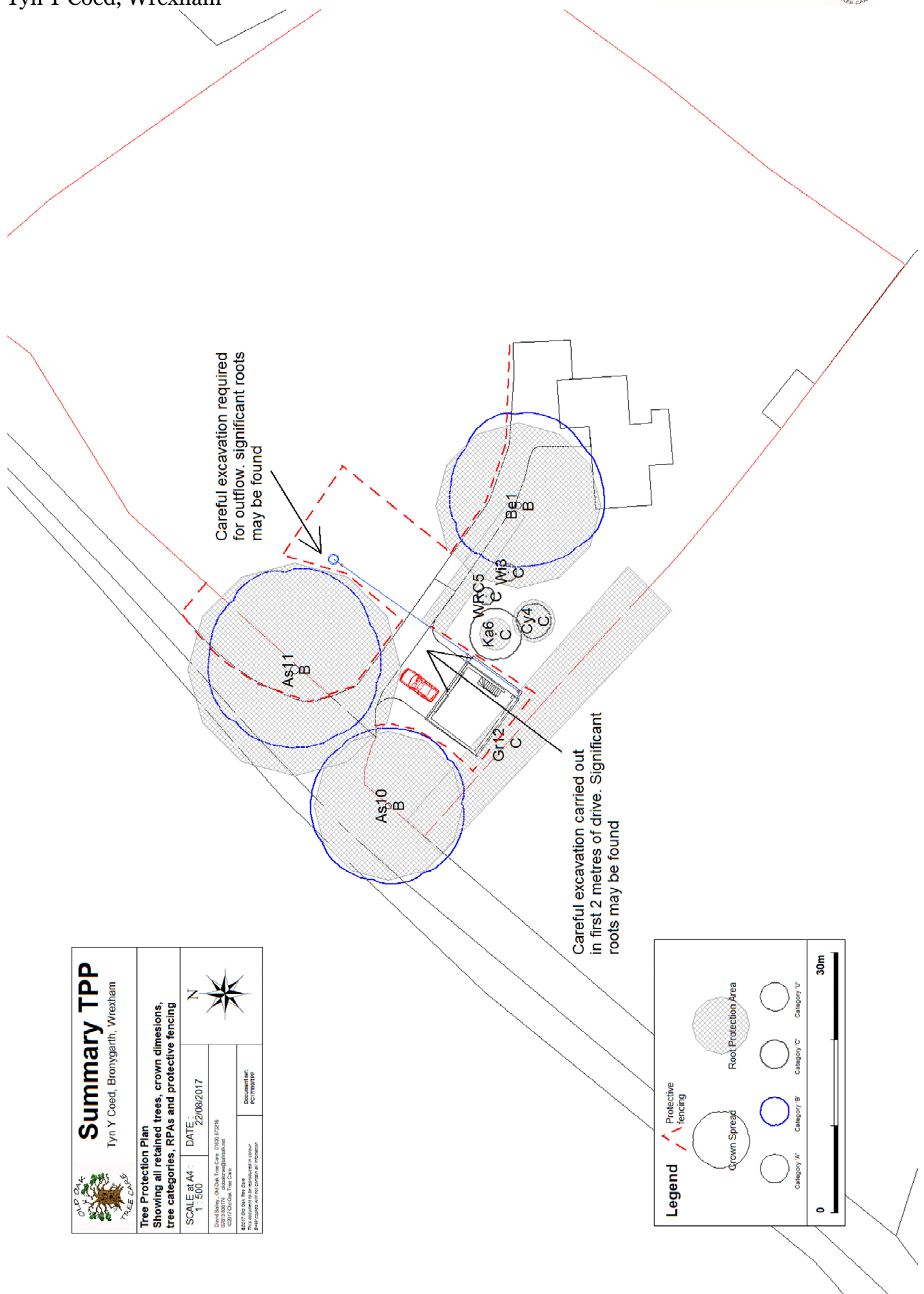
- 1.1 My name is David Bailey. I am the owner of Old Oak Tree Care, an arboricultural consultancy business based on the Staffordshire/Shropshire border. I have run my business as a contractor since 2004 and progressed to work as a consultant since 2008.
- 1.2 I attained the honours degree in arboriculture at Myerscough College, Lancashire at an upper second level in 2011 after completing the foundation degree in arboriculture at merit level from Myerscough College, in 2008. I attained the certificate of arboriculture from the Royal Forestry Society in 2006.
- 1.3 I am a professional member of the Arboricultural Association and hold professional indemnity insurance to £1million.
- 1.4 Old Oak Tree Care carries out work for government agencies, county councils, town/parish councils, NGO's, The Forestry Commission and private individuals.
- 1.5 In my work as a consultant, I have carried out surveys of trees in relation to construction, large scale health and safety investigations, private consultancy work, LPA appeals and work as an expert witness.

2.0 Instructions

- 2.1 I am instructed by Gareth Edwards of DPA to carry out a tree survey at Tyn Y Coed and produce a tree report to support a planning application at the site.
- 2.2 It is proposed to build a garage and drive within the property.
- 2.3 There are a number of trees on site. Some may be affected by the proposed development. This issue has been brought up by communication from Wrexham County Borough Council requesting a tree report into the matter.
- 2.4 I am therefore to visit the site, survey all trees of importance, work with the developer to produce a viable design and then produce a tree report to support the planning application.
- 2.5 The survey is to be compliant with BS5837:2012 Trees in Relation to design, demolition and construction: *Recommendations*.

3.0 Summary

- 3.1 *The proposal is possible without causing any harm to the amenity provided by trees to the area. Three small category C trees will be lost. These trees are very hard to see from a public viewpoint.*
- 3.2 *All retained trees can be effectively protected using standard tree protection measures.*
- 3.3 *The proposal is arboriculturally sound.*



Do not scale from summary TPP

4.0 Extent of Survey

- 4.1 The survey was undertaken on 12th August 2017. Weather conditions were overcast and showery with light winds.
- 4.2 The survey covers only arboricultural matters on, or adjacent to the site. The survey methodology is set out in Appendix C.
- 4.3 Statutory protection (either Tree Preservation Orders or Conservation Area Status), has not been officially investigated.
- 4.4 Information was gathered to comply with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations.
- 4.5 Trees were surveyed to assess their health, structural condition, estimated remaining longevity and amenity value to the area.
- 4.6 The survey deals with identifying the constraints retained trees will impose on development of the site, if trees will need to be removed to allow development and how remaining trees can be protected to prevent significant damage to them. The survey is to recommend necessary tree work if required.
- 4.7 Documents seen:
 - i) Site plans including proposed layout.
- 4.8 Documents referred to:
 - BS5837:2012 Trees in Relation to design, demolition, and construction - *Recommendations*.
 - BS3998:1010: Tree Work – *Recommendations*.
 - The Body Language of Trees: Mattheck and Breloer. DofE Research for Amenity Trees no. 4, 1994.
 - Tree roots in the built environment. TSO Research for Amenity Trees no. 6, 2006.
 - BS8545:2014 Trees: from nursery to independence in the landscape.
 - National House Building Council Standards 2016. Chapter 4.2 Building Near Trees. <http://www.nhbc.co.uk>
- 4.9 Any tree work suggested or recommended in Section 8 is to comply with British Standard 3998:2010 Tree Work – Recommendations.
- 4.10 In some instances, the National House Building Standards require foundation depths to be altered due to tree proximity and soil interactions. Soil types have not been laboratory analysed as part of this report so no definitive comment can be made. It is recommended that the instructions of Chapter 4.2 of the NHBC Standards is followed to ensure the correct foundation depth for all buildings is implemented.



- 4.11 Any engineering solutions referred to are done so on the understanding that specifications will be required from a suitably qualified professional. Reference is made to them purely to demonstrate an end-result is possible using the method prescribed.

5.0 The Site

- 5.1 The site is an isolated house and large garden of considerable age. The character of the site is rural.
- 5.2 To the north is a lane with agricultural fields beyond. To the east, south and west are agricultural fields.
- 5.3 The profile of the site slopes downwards from south to north.
- 5.4 There are a number of trees on, and surrounding the site. Some are large and significant.
- 5.5 Viewing the Cranfield Soilscape map as supplied by the Cranfield Soil and Agrifood Institute (www.landis.org.uk/soilscapes), it appears that the soil is a freely draining slightly acidic loamy soil. Fertility is registered as low. Soil of this kind provides a good medium for the growth of trees. Vegetation sourced soil shrinkage and heave is not associated with this soil.
- 5.6 As long as there are no buried obstructions, severe soil compaction or historical root damage, a typical root distribution could be expected for all of the trees on site.

6.0 Trees Surveyed

The schedule of trees surveyed is set out in the following section.

- Tree Number Tree identifier. Letters denote species and number is sequential
- Species Using common names
- Height In metres
- Stem diameter Taken 1.5 m from the ground in accordance to Annex C of BS5837:2012
- Age class Either young, mid aged, early-mature, mature, over mature or veteran
- Est R Cont Estimated Remaining Contribution. Trees useful life in years
- Physiological Assessment of the physiological condition of the tree
- Structural Assessment of the structural condition of the tree
- Ret. Cat. Retention Category. See Appendix C for details
- RPA radius Radius of the Root Protection Area (RPA) from the centre of the tree if circular. Should RPAs need to be drawn as a polygon, this value will not be valid



- RPA area Area of RPA regardless of shape
- Prelim Man Rec Preliminary management recommendations
- Notes Notes of importance to the survey

Tree Number:	Be1	Species:	Beech	Height:	18m
Stem diameter:	775mm	Age Cat.	mature	Est R cont.	>40years
Physiological cond:	good	Structural:	good	Ret. Cat.	A
RPA radius if RPA is circular:	9.3m			RPA area:	272m ²
Prelim Man. Rec.					
Notes: Significant tree by house					

Tree Number:	Gr2	Species:	Hedge	Height:	3m
Stem diameter:	100mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	1.2m			RPA area:	5m ²
Prelim Man. Rec.					
Notes: Holly and hawthorn					

Tree Number:	Wi3	Species:	Willow	Height:	5m
Stem diameter:	75mm	Age Cat.	young	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	0.9m			RPA area:	3m ²
Prelim Man. Rec.					
Notes: Small hidden garden tree					

Tree Number:	Cy4	Species:	Cypress	Height:	8m
Stem diameter:	200mm	Age Cat.	mid-aged	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	2.4m			RPA area:	18m ²
Prelim Man. Rec.					
Notes:					



Tree Number:	WRC5	Species:	West Red Cedar	Height:	4m
Stem diameter:	75mm	Age Cat.	young	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	0.9m			RPA area:	3m2
Prelim Man. Rec.	Small hidden garden tree				
Notes:					

Tree Number:	Ka6	Species:	Katsura	Height:	6m
Stem diameter:	150mm	Age Cat.	mid-aged	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	1.8m			RPA area:	10m2
Prelim Man. Rec.					
Notes:					

Tree Number:	Ch7	Species:	Cherry	Height:	8m
Stem diameter:	200mm	Age Cat.	mid-aged	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	2.4m			RPA area:	18m2
Prelim Man. Rec.					
Notes:	Small garden tree				

Tree Number:	Cy8	Species:	Cypress	Height:	7m
Stem diameter:	200mm	Age Cat.	mid-aged	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	2.4m			RPA area:	18m2
Prelim Man. Rec.					
Notes:					

Tree Number:	Cy9	Species:	Cypress	Height:	4m
Stem diameter:	100mm	Age Cat.	young	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	1.2m			RPA area:	5m2
Prelim Man. Rec.					
Notes:					



Tree Number:	As10	Species:	Ash	Height:	15m
Stem diameter:	700mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	B
RPA radius if RPA is circular:	8.4m			RPA area:	222m2
Prelim Man. Rec.					
Notes: Significant tree on site/ access road boundary					

Tree Number:	As11	Species:	Ash	Height:	23m
Stem diameter:	1000mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	B
RPA radius if RPA is circular:	12m			RPA area:	453m2
Prelim Man. Rec.					
Notes: Significant tree on site/track boundary					

Tree Number:	Gr12	Species:	Hedge	Height:	6m
Stem diameter:	200mm	Age Cat.	mature	Est R cont.	10 to 20years
Physiological cond:	good	Structural:	good	Ret. Cat.	C
RPA radius if RPA is circular:	2.4m			RPA area:	18m2
Prelim Man. Rec.					
Notes: Poor semi hedge grouping of Norway spruces which have been topped					

7.0 Arboricultural work required

- 7.1 None of the large or significant trees require removal or work to position the garage as shown in Appendix A and B.
- 7.2 Three small category C trees will require removal to position the garage, Ch7, Cy8 and Cy9. A small part of the RPA of Gr12 will be entered into by the building. These trees are soon to be removed and replaced with species more in keeping with other hedgerows in the vicinity. Therefore, these trees have not been fully protected.
- 7.3 All tree work is to be carried out by a tree surgeon to BS3998:2010 Tree Work: Recommendations.

8.0 Tree Protection

- 8.1 Root Protection Areas (RPAs) do not show the total extent of a tree's roots but is an area around a tree that contains the minimum amount of roots and rooting medium to maintain the viability of the tree. This area is prioritised for the tree. The RPA should contain the area of growing medium as set out in section 6 even if the RPA shape needs to be adjusted to more accurately reflect the rooting architecture.
- 8.2 RPAs are usually drawn as a circle, its radius measuring 12 times the diameter of the tree trunk. Although tree roots are often found underneath roads, buildings and in inhospitable places, the tree would suffer if this area was 'set aside' for the roots, especially if there was better rooting mediums close by.
- 8.3 All retained trees can be effectively protected by a fence as shown in the tree protection plan TPP, Appendix B.
- 8.4 Where RPAs are not drawn as a circle, it has been estimated that the rooting architecture of the tree will not prosper in parts of its environment where rooting is difficult such as roads, buildings, underground obstructions or natural barriers such as rivers or embankments.
- 8.5 The Tree Protection Plan (TPP), Appendix B, shows all retained trees and how their RPAs are to be protected by a fence as set out in Appendix E.
- 8.6 RPAs are to be protected from infill, chemical incursion, fuel spillage, building material storage, solid waste disposal, liquid waste disposal or soil compaction of any kind, be it machinery, goods, foot traffic or vehicular.
- 8.7 Where specified, tree protection should be facilitated by a fence. Examples of such a fence are given in Appendix E. It is essential these fences cannot be moved without concerted effort.
- 8.8 Although all of the large trees on site have tracks or tarmac within their RPAs, it is considered that the trees have grown accustomed to these long standing structures. Roots will have gained some rooting potential below these surfaces or crossed them to areas of better rooting potential.
- 8.9 Excavations for the first two metres of the drive will need to be undertaken with the expectation of finding tree roots, most likely from As11, but possibly from As10. Excavations should be overseen by a banksman and undertaken very slowly to ensure any significant roots encountered are not damaged. Significant roots, above 25mm in diameter should not be cut or damaged. Soil should be excavated around them by hand with exposed roots wrapped in damp hessian. Roots below 25mm in diameter should be cut with secateurs.
- 8.10 The out-flow of the drainage to the east of As11 should be excavated in the same way. If fencing prevents the digger from getting close enough to the planned route, then the trench will need to be dug by hand. Protective fencing is not to be moved.

9.0 Conclusion

- 9.1 The proposed scheme requires the removal of no significant trees. Three category C trees require removal, Ch7, Cy8 and Cy9 to allow the construction of the garage.
- 9.2 There will be an encroachment into the RPA of the category C hedge Gr12. This is considered acceptable as this is a poor hedge and will soon be removed.
- 9.3 No amenity provided by trees will be lost within the area.
- 9.4 All retained trees can be protected using standard tree protection measures.
- 9.5 The proposal is arboriculturally sound and complies with British Standard 5837:2012 Trees in relation to design, demolition, and construction – Recommendations.

The data, views and opinions of this report relate to the survey undertaken on the date shown and do not take into account effects of weather conditions, vandalism or accidental damage. Neither can the effects of tree surgery work, poorly executed or which does not comply with BS3998:2010, be predicted. Old Oak Tree Care cannot accept any liability in connection with any of these factors. This report becomes out of date and in need of renewal two years from the survey date. Data relating to tree health and condition will become out of date and in need of renewal six months from the survey date.



Appendix A

Tyn Y Coed, Bronygarth, Wrexham

Tree Constraints Plan with Proposed Development
Showing all trees, crown dimesions,
tree categories and Root Protection Areas (RPAs)

SCALE at A4 :
1 : 500

DATE :
23/08/2017

N

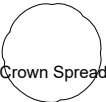


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Document ref:
PC17/193/TCP

Legend



Crown Spread



Root Protection Area



Category 'A'



Category 'B'



Category 'C'



Category 'U'

0



30m

The map displays a site plan with various trees and their associated Root Protection Areas (RPAs). The trees are labeled with codes and categories:

- As10 B (Category B)
- As11 B (Category B)
- Gr12 C (Category C)
- Cy8 C (Category C)
- Ch7 C (Category C)
- Ka6 C (Category C)
- Cy9 C (Category C)
- WRC5 C (Category C)
- Wi3 C (Category C)
- Cy4 C (Category C)
- Be1 B (Category B)

The map also shows a proposed development area, indicated by a red outline, and a scale bar from 0 to 30m. A north arrow is present in the top right corner.



Appendix B

Tyn Y Coed, Bronygarth, Wrexham

Tree Protection Plan

Showing all retained trees, crown dimesions, tree categories, RPAs and protective fencing

SCALE at A4 :
1 : 500

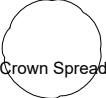
DATE :
23/08/2017

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Document ref:
PC17/193/TTP

N





Crown Spread



Root Protection Area



Category 'A'



Category 'B'



Category 'C'



Category 'U'

0



30m

The map illustrates the layout of trees and their protection zones. Trees are labeled with codes and categories: As10 B, As11 B, Gr12 C, Ka6 C, Cy4 C, WRC5 C, Wi3 C, and Be1 B. Crown spreads are shown as solid blue circles, and Root Protection Areas (RPAs) are indicated by hatched circles. Protective fencing is marked with red dashed lines. A red car icon is positioned near the center of the map. Two text annotations provide specific instructions: 'Careful excavation required for outflow. significant roots may be found' with an arrow pointing to a blue circle near As11 B, and 'Careful excavation carried out in first 2 metres of drive. Significant roots may be found' pointing to the area near Gr12 C. The map also shows a road, a building footprint, and a north arrow.

Appendix C

Survey Methodology, describing how tree survey was conducted

- 1.1 Where trees are not shown on a topographical survey their positions were plotted using triangulation from marked positions on the plan using a laser rangefinder.
- 1.2 Crown diameters and heights were estimated using a laser rangefinder.
- 1.3 I viewed each tree, or group, on the survey to assess structural integrity, health, presence of dysfunction and form. The basis of the survey was undertaken using VTA (visual tree assessment method) as expounded by Mattheck and Breloer in *The body language of trees, A handbook for failure analysis*, TSO 1994.
- 1.4 Stem diameters were measured in millimetres, taking the circumference at approximately 1.5 metres above the ground and dividing by π (Pi), in accordance with Annex C of BS5837:2012. Where ivy or any other material would give an incorrect measurement, a suitable correction was made before recording. Results were rounded up or down to the nearest 25mm. Where trees could not be reached, their diameters were estimated.
- 1.5 The trees were assessed for longevity using survey data, experience gained in working with similar trees and likely management decisions.
- 1.6 Trees were placed into categories using the criteria set out in BS5837:2012 (Appendix D).
- 1.7 All trees that will be affected by the entire development were surveyed, excluding those due to distance from the development, those of insignificant nature or unremarkable trees that fall within the RPAs of more significant trees.
- 1.8 No invasive testing was carried out.
- 1.9 No soil samples were taken.
- 1.10 Internal investigations and tissue samples were not taken.
- 1.11 All tree information is tabulated in Appendix F and plotted in Appendix A, overlaid on top of a survey plan of the area.

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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	See Table 2																					
Trees to be considered for retention																							
<table border="1"> <thead> <tr> <th>1 Mainly arboricultural qualities</th><th>2 Mainly landscape qualities</th><th>3 Mainly cultural values, including conservation</th></tr> </thead> <tbody> <tr> <td colspan="3">Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years</td></tr> <tr> <td>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)</td><td>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</td><td>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</td></tr> <tr> <td colspan="3">Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</td></tr> <tr> <td>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</td><td>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</td><td>Trees with material conservation or other cultural value</td></tr> <tr> <td colspan="3">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</td></tr> <tr> <td>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</td><td>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</td><td>Trees with no material conservation or other cultural value</td></tr> </tbody> </table>			1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	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)	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	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
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Figure 2 Default specification for protective barrier

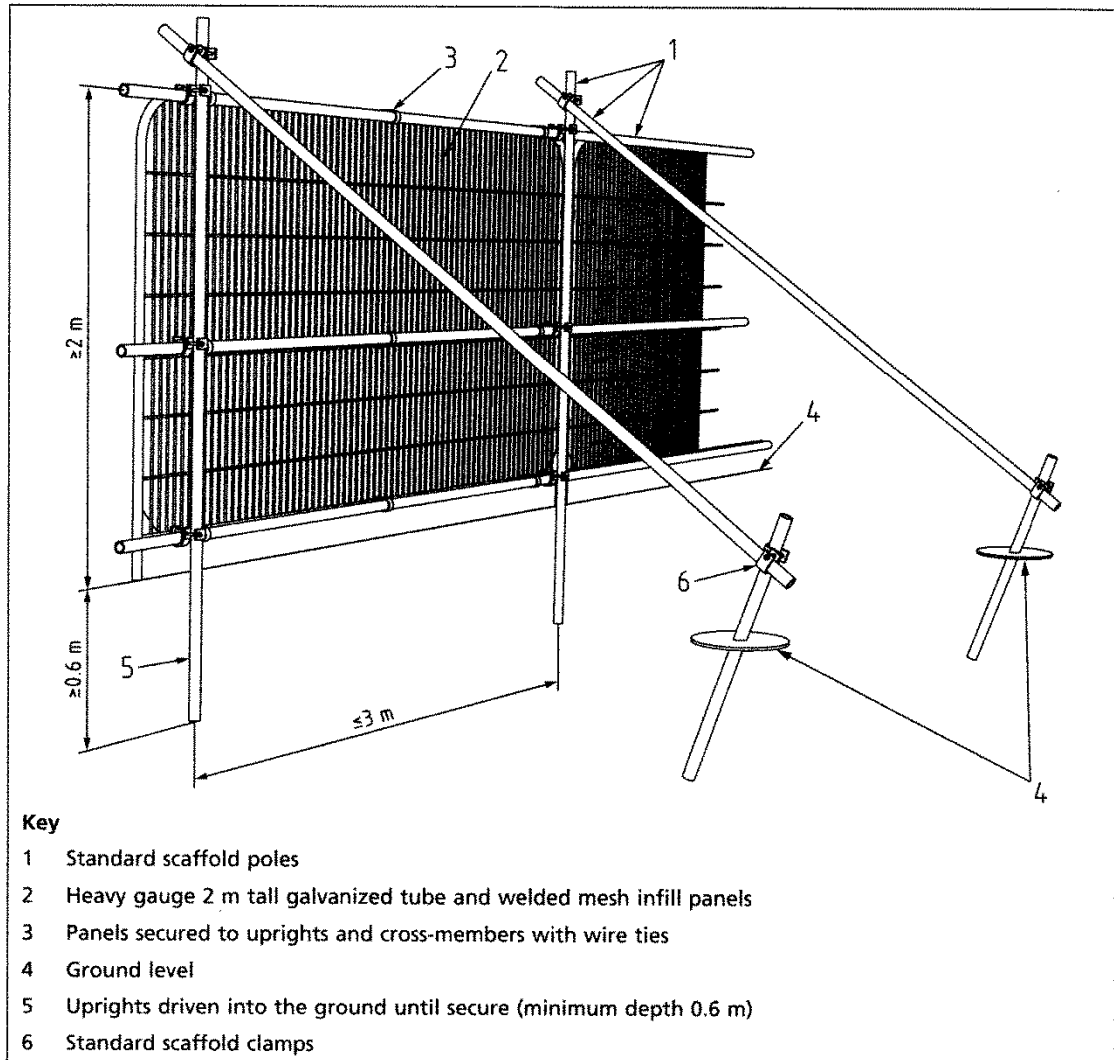
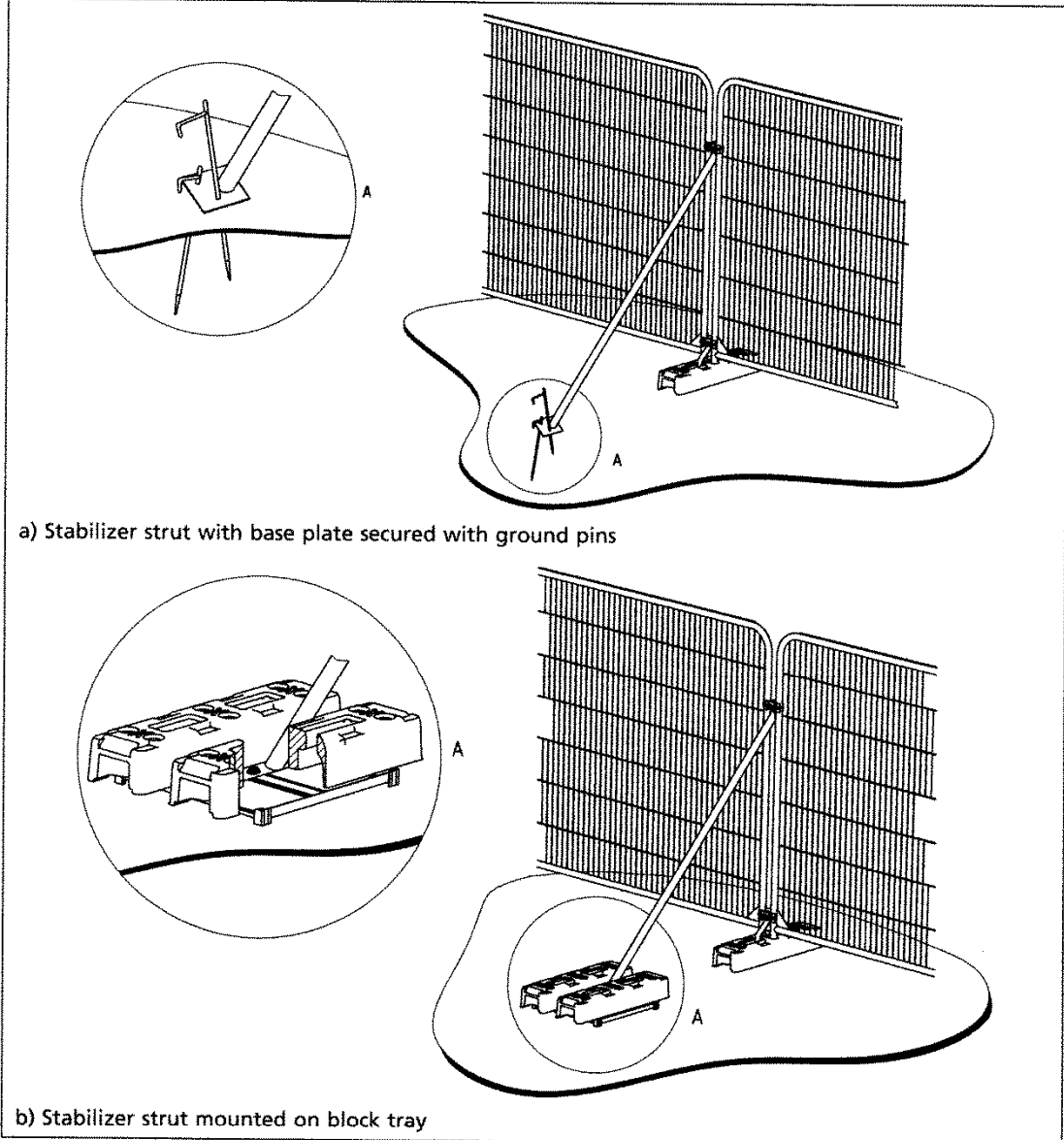


Figure 3 Examples of above-ground stabilizing systems



Appendix F			Tree survey raw data																
Tree number	Species	Height (m)	Diameter (mm)	N Crown spread (m)	E	S	W	N Crown Height (m)	E	S	W	Age bracket	Physiological Condition	Structural Condition	Years remaining	Quality assessment	RPA radius(m)	RPA Area (m2)	Notes
Be1	Beech	18	775	8	11	10	7	6	7	7	6	mature	good	good	>40	A	9.3	272	
Gr2	Hedge	3	100	1	1	1	1	0	0	0	0	mature	good	good	10 to 20	C	1.2	5	Hedge, holly and hawthorn
Wi3	Willow	5	75	1	1	1	1	1	1	1	1	young	good	good	10 to 20	C	0.9	3	
Cy4	Cypress	8	200	2	2	2	2	0	0	0	0	mid-aged	good	good	10 to 20	C	2.4	18	
WRC5	West Red Cedar	4	75	1	1	1	1	0	0	0	0	young	good	good	10 to 20	C	0.9	3	
Ka6	Katsura	6	150	3	3	3	3	2	2	2	2	mid-aged	good	good	10 to 20	C	1.8	10	
Ch7	Cherry	8	200	2	2	2	2	0	0	0	0	mid-aged	good	good	10 to 20	C	2.4	18	
Cy8	Cypress	7	200	3	3	3	3	0	0	0	0	mid-aged	good	good	10 to 20	C	2.4	18	
Cy9	Cypress	4	100	1	1	1	1	0	0	0	0	young	good	good	10 to 20	C	1.2	5	
As10	Ash	15	700	9	9	9	9	8	8	8	8	mature	good	good	10 to 20	B	8.4	222	
As11	Ash	23	1000	10	12	10	9	8	7	4	10	mature	good	good	10 to 20	B	12	453	
Gr12	Hedge	6	100	2	2	2	2	0	0	0	0	mature	good	good	10 to 20	C	1.2	5	Hedge, holly and hawthorn