



**BS5837:2012**

**Trees in relation to design, demolition and construction –  
Recommendations**

## **Tree Survey**

**Planning Consent UK Ltd**

Sutton United Football Club

Gander Green Lane

Sutton

SM1 2EY

**16 April 2021**

Author: Sam Hobson *MICFor (Chartered Arboriculturist), BSc (Hons), MArborA.*

## Introduction

Arbtech Consulting Limited (Arbtech) received written instruction in April 2021 from Planning Consent UK Ltd to attend Sutton United Football Club, Gander Green Lane, Sutton, SM1 2EY; grid reference: TQ 25087 64697 (site) to undertake an arboricultural survey a to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of trees and Tree Constraints Plan.

I am Sam Hobson, an arboricultural surveyor at Arbtech Consulting Ltd. I undertook the tree survey 14<sup>th</sup> April 2021 and subsequently have produced this summary of my findings.

I hold a BSc (Hons) in Arboriculture and I am qualified in LANTRA Professional Tree Inspection. I am a Professional Member of the Institute of Chartered Foresters (Chartered Arboriculturist) and Professional Member of the Arboricultural Association.

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of one million Pounds Sterling in each and every claim.

Table 1: Documents referred to.

Document	Reference No.
Topographical Survey	2018/34
British Standard 5837:2012	-
Tree Survey Schedule	Arbtech TS 01
Tree Constraints Plan	Arbtech TCP 01

## Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Sam Hobson on 14<sup>th</sup> April 2021.

During the survey I categorised the trees using “Table 1 – Cascade chart for tree quality assessment” of the BS5837:2012 (see Appendix 1).

A total of 18 individual trees and 11 groups were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).



Table 2: Documents upon which this tree survey has been based.

Document	Originator	Reference Number	Title
Topographical Survey	XYZ Land Surveys	2018/34	Site Survey

Limitations: the survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

\* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.

### Site description

The site comprises the grounds of an existing football ground, surrounding car park and internal access road.



Figure 1: OS Map (Bing Maps)

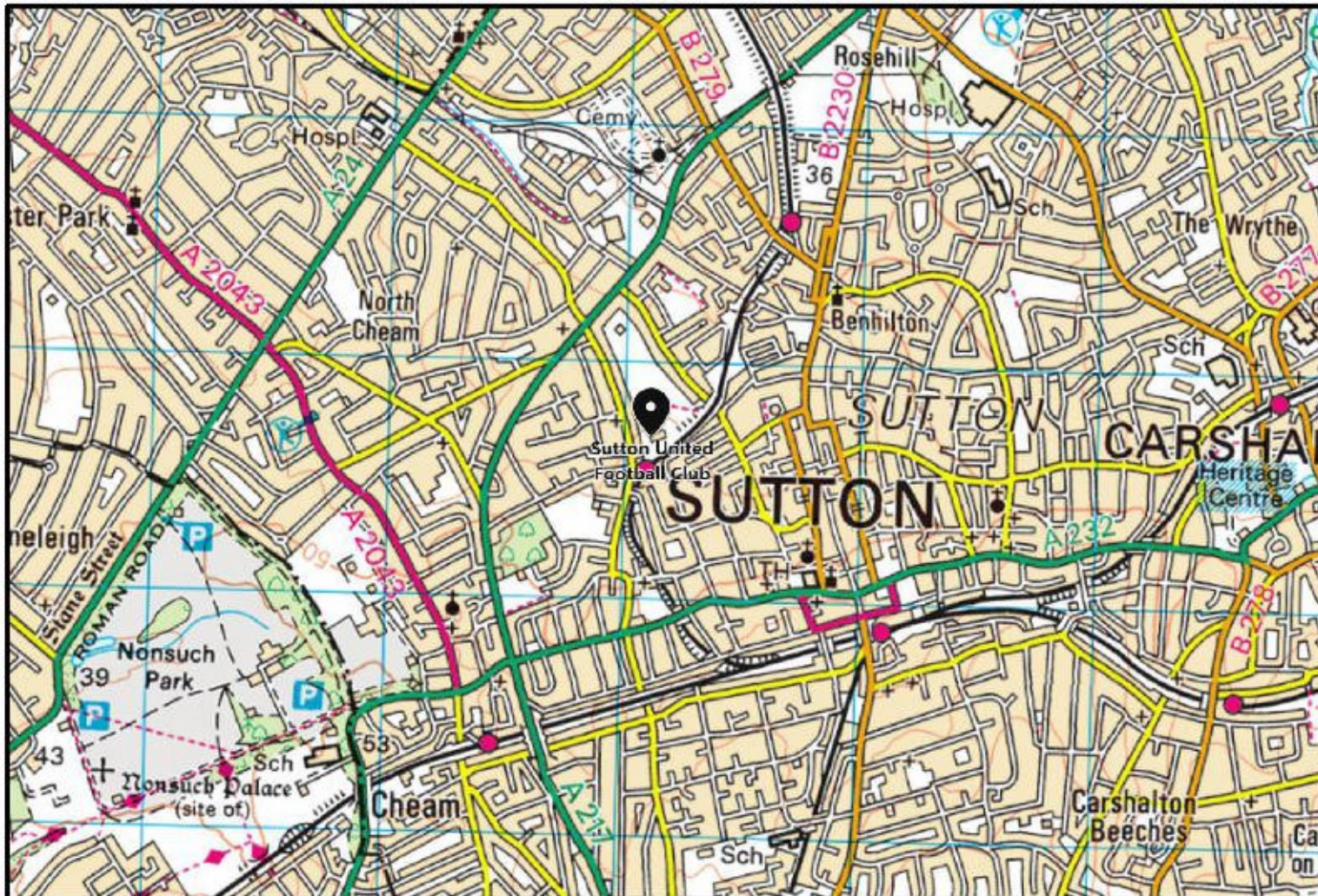


Figure 2: Aerial Image of site (Google Maps)



It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

*This content is for educational and informative purposes; so parts of it are reproduced with the kind permission of BSI Global.*



## BS5837:2012 Scope

This standard recognises that there can be problems for development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

## Methodology

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all trees included in the land survey red line boundary plan, as well as any that may have been missed, and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories; **A**, **B**, **C**, or **U** (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.



The survey schedule lists all the trees or groups of trees. The following information is also provided:

- I. reference number (to be recorded on the tree survey plan);
- II. species (common or scientific names);
- III. height in meters (m);
- IV. stem diameter in millimeters (mm) at 1.5 m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
- V. branch spread in meters taken at the four cardinal compass points;
- VI. height of crown clearance above adjacent ground level in meters (m);
- VII. age class (Newly planted, Young, Semi-mature, Early mature, Mature, Over mature);
- VIII. physiological condition (e.g. good, fair, poor, decline and dead);
- IX. structural condition (e.g. good, fair, poor and ivy);
- X. preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat; and
- XI. The retention category referring to the quality and useful contribution in years; **U** = <10yrs; **A** = >40yrs; **B** = >20yrs; **C** = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Table 1 Cascade chart for tree quality assessment).



## Definitions

### Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

### Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

### Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

### Root Protection Area

An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m<sup>2</sup>.

### Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m<sup>2</sup>), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

### Arboricultural Impact Assessment

This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

### Tree Protection Plan

A TPP is plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

### Arboricultural Method Statement

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.



## Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our Client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

## Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (.pdf)
- Tree Constraints Plan (.pdf)

If you require clarification of information contained herein, please do not hesitate to contact us via 01244 661170.

Yours Sincerely,

### Signature



Sam Hobson *MICFor (Chartered Arboriculturist), BSc (Hons), MArborA.*  
Arboricultural Consultant

01244 661170



## Appendix 1: Table 1 Cascade chart for tree quality assessment

---



**BS5837:2012 Trees in relation to design, demolition and construction – Recommendations**

**Table 1** Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
<p><b>Category U</b></p> <p>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</p>	<ul style="list-style-type: none"> <li>• Trees that have 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)</li> <li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>• 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</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.</i></p>			Dark red
	<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values, including conservation</b>	
<b>Trees to be considered for retention</b>				
<p><b>Category A</b></p> <p><b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years</p>	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 dominate 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)	Light green
<p><b>Category B</b></p> <p><b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years</p>	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of 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	Mid blue
<p><b>Category C</b></p> <p><b>Trees of low quality</b> with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm</p>	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 value	Trees with no material conservation or other cultural value	Grey

*This content is for educational and informative purpose and has been reproduced with the kind permission of BSI Global*



## Appendix 2: Schedule of Trees

---



DATE  
14.04.2021

CLIENT  
Planning Consent UK Ltd

SITE  
Sutton United Football Club

REFERENCE  
1262-TS-V1-A

Tree No.	Common Name	Botanical Name	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Preliminary recommendations	BS5837 Retention Category	RPA (m <sup>2</sup> )	RPA Radius (m)
					N	E	S	W									
T1	Common ash	<i>Fraxinus excelsior</i>	12	580	3	3	2	3	5	E/Mat	Poor	Poor	Large ash tree on raised bank at edge of site. Heavily decayed with Inonotus hispidus brackets present. Previously been topped with very limited regrowth. Large stem wound on south side resulting from lost limb. Very limited future value.	Consider removal in the interests of general good management	U	150	6.90
T2	Black locust	<i>Robinia pseudoacacia</i>	13	450	5	5	5	5	3	Mat	Fair	Fair	Large tree on embankment at edge of site. Heavily clad in ivy. Tree forms codominant stems at 3m. Located on embankment approx 1m higher than hard surfacing car park underneath canopy.	No work required at time of assessment	C1	92	5.40
T3	Sycamore	<i>Acer pseudoplatanus</i>	14	550	5	5	5	5	5	Mat	Fair	Fair	Large tree at corner of site, located less than 1m away from hard surface car park. Heavily clad in ivy restricting assessment of main stem and canopy. Canopy is heavily encroaches on car park lighting.	No work required at time of assessment	C1	137	6.60
T4	Common ash	<i>Fraxinus excelsior</i>	13	367	4	3	2	3	4	E/Mat	Declining	Declining	Poor quality ash tree which is twin stemmed at base. Tree has signs of ash dieback present and a very poor vigour in canopy. Tree is growing into old rail fencing on eastern base. Very limited future value.	Consider removal in the interests of general good management	U	64	4.50
T5	Common lime	<i>Tilia x europaea</i>	14	633	5	5	5	5	5	Mat	Good	Fair	Large boundary/screening tree located next to electrical transformer. Tree is multistemmed from base with heavy epicormic growth. Unable to survey south and east side of trees due to fencing. Tree has very limited future value due to location.	No work required at time of assessment	C1/2	177	7.50
T6	Sycamore	<i>Acer pseudoplatanus</i>	9	539	5	4	4	3	4	E/Mat	Fair	Declining	Canopy previously reduced to 5m with some regrow this. Main stems decayed around reduction points and some medium deadwood within canopy. Low quality tree limited current or future value.	No work required at time of assessment	C1	137	6.60
T7	Horse chestnut	<i>Aesculus hippocastanum</i>	11	450	5	5	5	5	3.5	E/Mat	Fair	Fair	Horse chestnut located towards entrance to site. Hcbc prevalent with severe bark cracking and bleeding. Limited future value.	No work required at time of assessment	C1	92	5.40



DATE  
14.04.2021

CLIENT  
Planning Consent UK Ltd

SITE  
Sutton United Football Club

REFERENCE  
1262-TS-V1-A

Tree No.	Common Name	Botanical Name	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Preliminary recommendations	BS5837 Retention Category	RPA (m <sup>2</sup> )	RPA Radius (m)
					N	E	S	W									
T8	Sycamore	<i>Acer pseudoplatanus</i>	8	290	6	0	0	2	4	Dead	Dead	Poor	Standing dead tree on edge of group. No remaining value.	Consider removal in the interests of general good management	U	41	3.60
T9	Horse chestnut	<i>Aesculus hippocastanum</i>	8	416	4	4	4	4	2	E/Mat	Fair	Fair	Horse chestnut located towards entrance to site. Multi stemmed from base with ivy obscuring main stem. Early signs of hcbc. Limited value due to hcbc.	No work required at time of assessment	C1/2	82	5.10
T10	Tree of heaven	<i>Ailanthus altissima</i>	9	500	2	4	5	4	2	Mat	Poor	Poor	Stands within wooded area not on topo survey. Dense ivy obscuring most of tree. Tree has failed at 8m with very little remaining structure. No future value.	Consider removal in the interests of general good management	U	113	6.00
T11	Sycamore	<i>Acer pseudoplatanus</i>	17	425	3	4	4	3	4	E/Mat	Fair	Fair	Element of wooded area. Dense ivy coverage. Very low individual value. Minor contribution to group feature.	No work required at time of assessment	C1/2	82	5.10
T12	Pedunculate oak	<i>Quercus robur</i>	9	450	4	5	4	6	2	E/Mat	Good	Good	Boundary/screening tree located on embankment next to site boundary. Tree is growing into old wire tree guard which should be removed to ensure it has long term retention. Minor Secure deadwood present throughout canopy. If tree has good management then tree has long term value	No work required at time of assessment	B1/2	92	5.40
T13	Japanese pagoda tree	<i>Styphnolobium japonicum</i>	14	650	6	8	4	8	2	Mat	Good	Fair	Larger tree towards edge of wooded group. Broad canopy. Small diameter deadwood throughout. Large component of area, good screening from adjacent park.	No work required at time of assessment	C1/2	191	7.80
T14	Common ash	<i>Fraxinus excelsior</i>	11	500	7	5	4	4	3	E/Mat	Fair	Fair	On edge of wooded area. Dense ivy obscuring assessment. Low vigour in upper canopy.	No work required at time of assessment	C1/2	113	6.00
T15	Sycamore	<i>Acer pseudoplatanus</i>	8	216	3	3	3	3	2	S/Mat	Fair	Fair	Small boundary/screening tree located on edge of site. Tree has very limited long term value as tree is growing into boundary fence.	No work required at time of assessment	C1/2	23	2.70
T16	Common ash	<i>Fraxinus excelsior</i>	5	130	2	2	2	2	1	S/Mat	Declining	Declining	Ash regen growing through fence. No future value.	Consider removal in the interests of general good management	U	7	1.50



DATE  
14.04.2021

CLIENT  
Planning Consent UK Ltd

SITE  
Sutton United Football Club

REFERENCE  
1262-TS-V1-A

Tree No.	Common Name	Botanical Name	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Preliminary recommendations	BS5837 Retention Category	RPA (m <sup>2</sup> )	RPA Radius (m)
					N	E	S	W									
T17	Sycamore	<i>Acer pseudoplatanus</i>	10	490	6	6	6	6	2	S/Mat	Good	Fair	Tree located at edge of site behind buildings. Tree is regeneration and is growing into hard surfacing. Unable to access due to location. Very limited future value due to location.	No work required at time of assessment	C1	113	6.00
T18	Norway maple	<i>Acer platanoides</i>	8	340	6	5	5	5	2	E/Mat	Good	Good	Stand within adjacent park. Canopy overhanging site.	No work required at time of assessment	B1/2	55	4.20
G1	Sycamore		Ave 16	300	See associated plans				5	E/Mat	Good	Fair	Small group of two trees alongside site edge. Located between hard surface car park and neighbouring property. Canopy has been reduced away from boundary edge to south side.	No work required at time of assessment	C2	See associated plans	
G2	Sycamore, Common ash, White willow, Elder		Ave 11	350	See associated plans				0	E/Mat	Fair	Fair	Mixed boundary/screening group on edge of site adjacent to railway. Group is of poor quality and is growing into wire fencing on east side. Dense ivy obscuring many trees in the group. Group consists mainly of regenerated sycamore. Ash in the group have ash dieback present. Due to quality and location the group has limited future potential.	No work required at time of assessment	C2	See associated plans	
G3	Sycamore		Ave 7	220	See associated plans				0.5	S/Mat	Fair	Fair	Small cluster of regen above retaining wall. Very low value generally	No work required at time of assessment	C2	See associated plans	
G4	Sycamore		Ave 15	320	See associated plans				3	E/Mat	Good	Fair	Group straddles boundary, ownership unclear. Overgrown with no access to base of group. Screening/boundary group, likely self regeneration.	No work required at time of assessment	C2	See associated plans	
G5	Sycamore		Ave 12	400	See associated plans				0	Mat	Declining	Declining	Poor quality group of sycamore heavily clad in dead ivy. Crown has very limited vigour with one tree already failed. Group has very limited future value.	Consider removal in the interests of general good management	U	See associated plans	
G6	Sycamore		Ave 17	400	See associated plans				6	Mat	Good	Fair	Cluster of sycamore, mutually suppressed trees on landscape edge to car park. Some medium diameter deadwood associated with canopies. Generally low value.	No work required at time of assessment	C2	See associated plans	



**DATE** 14.04.2021 **CLIENT** Planning Consent UK Ltd **SITE** Sutton United Football Club **REFERENCE** 1262-TS-V1-A

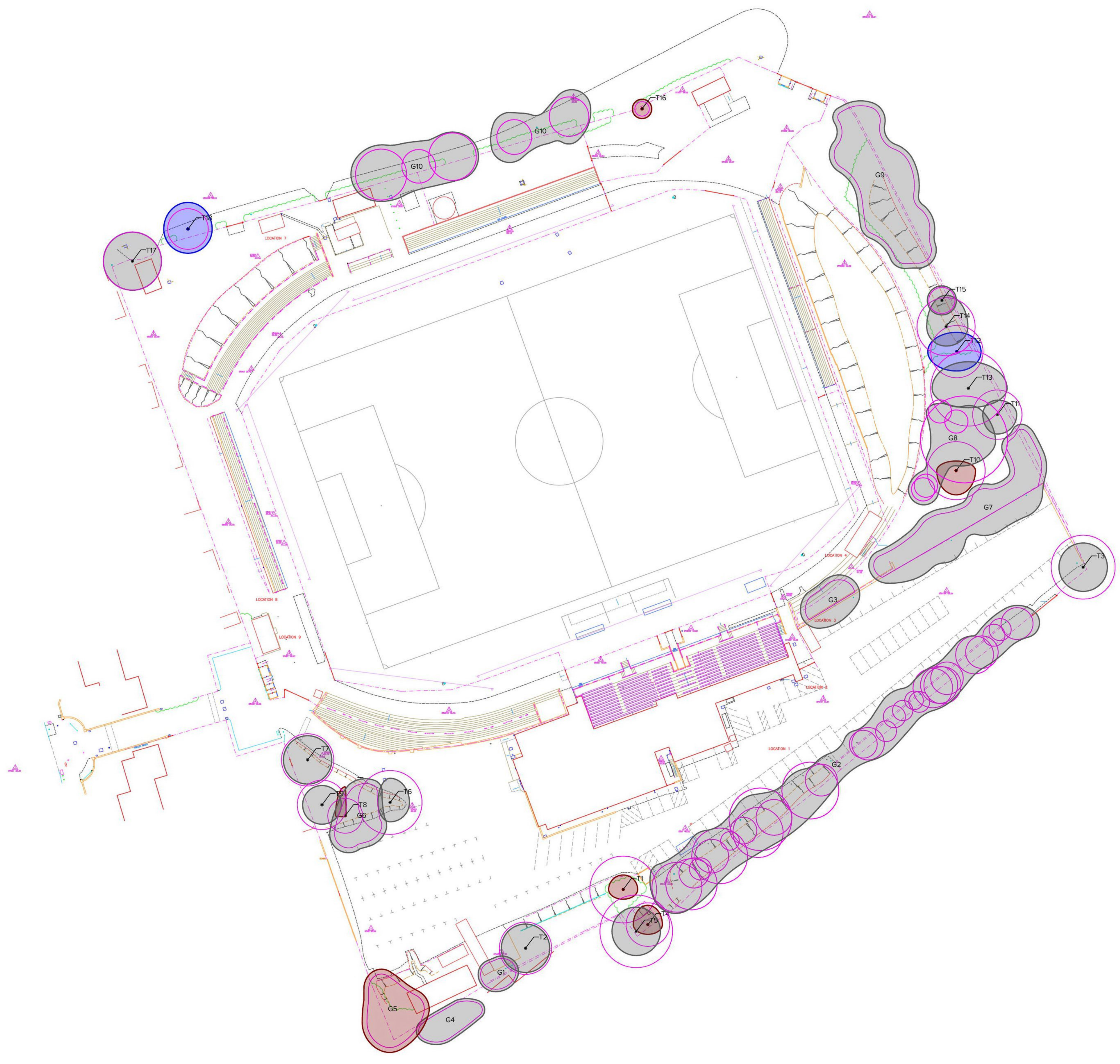
Tree No.	Common Name	Botanical Name	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Preliminary recommendations	BS5837 Retention Category	RPA (m <sup>2</sup> )	RPA Radius (m)
					N	E	S	W									
G7	Sycamore, Common ash, Black locust, Elm species		Min 3 - Max 17	70	See associated plans				4	E/Mat	Fair	Fair	Low quality, unmanaged group forming edge of wooded area adjacent to car park. Dense ivy on many trees. Many sycamore exhibiting dieback and low vigour throughout canopy. Group requires management if retained, provides screening value collectively.	No work required at time of assessment	C2	See associated plans	
G8	Tree of heaven		Min 8 - Max 16	200	See associated plans				1	Mat	Fair	Fair	Part of wooded area predominantly tree of heaven with one larger tree and numerous small trees and suckers. Larger tree obscured by ivy. Future value limited by structural condition and characteristics of species at maturity.	No work required at time of assessment	C2	See associated plans	
G9	Sycamore, Horse chestnut, Common ash		Ave 13	400	See associated plans				0.5	Mat	Fair	Fair	Mixed group of poor quality trees. Heavily clad in ivy and unable to survey east side due to boundary fence. Trees overhangs Heavily used skate park used predominantly by children. Ash in the group have early signs of ash dieback and horse chestnut has hcbc present. If left unmanaged the group has a limited future potential.	No work required at time of assessment	C2	See associated plans	
G10	Norway maple, Horse chestnut, Common ash		Ave 11	350	See associated plans				2.5	E/Mat	Fair	Fair	Off site group located right next to site. Mixed group of trees forming a screening group with park. Hcnc associated with horse chestnut trees and ash dieback associated with ash trees.	No work required at time of assessment	C2	See associated plans	
G11	Leyland cypress		Ave 5	120	See associated plans				1.5	S/Mat	Good	Fair	Short section of cypress hedge between temporary building and boundary.	No work required at time of assessment	C2	See associated plans	



## Appendix 3: Tree Constraints Plan

---





**TREE CONSTRAINTS PLAN**

**CLIENT**  
 Planning Consent UK Ltd


**PROJECT**  
 Sutton United Football Club

**KEY:**

A Category Tree (High quality / retention value)	C Category Tree (Low quality / retention value)	Canopy Spread
B Category Tree (Moderate quality / retention value)	U Category Tree (No remaining retention value)	Tree Stem
		Root Protection Area



## Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech TSR 01	Sam Hobson		Arboricultural Consultant	1	16/04/2021

### Limitations

Arbtech Consulting Ltd has prepared this Report for the sole use of the above named Client/Agent in accordance with our terms of business, under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Ltd. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by Arbtech Consulting Ltd.

### Copyright

© This Report is the copyright of Arbtech Consulting Ltd. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.