



Arboricultural Survey to BS5837:2012

ARRI Rental UK

**3 Highbridge Industrial Estate,
Oxford Road,
Uxbridge,
Middlesex,
UB8 1LX**

14 July 2022

Jim Green

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If this report has been released electronically the appendices referred to herein can be found in the annexed zip folder/s as .pdf files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans are annexed separately as A0, A1, A2 or A3 as appropriate.

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1. Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 11th July 2022 from Dana Harrison to attend 3 Highbridge Industrial Estate, Oxford Road, Uxbridge, Middlesex, UB8 1LX; grid reference, TQ051843 (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, Tree Constraints Plan, Arboricultural Impact Assessment, Arboricultural Method Statement and Tree Protection Plan.

I am Jim Green, an arboricultural consultant at Arbtech Consulting Ltd. I undertook the tree survey on 14th July 2022 and subsequently have produced this summary of my findings.

I have over thirty years of industry experience, hold the LANTRA Professional Tree Inspection certificate and am a 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.
Survey base drawing	22-055-TP-001
LPA pre-app comments	N/A
British Standard 5837:2012	“BS5837”
Tree Survey Schedule	Arbtech TS 01
Tree Constraints Plan	Arbtech TCP 01

2. Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Jim Green on 14th July 2022.

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 10 (ten) trees and 2 (two) groups of trees were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).

Multiple small trees and shrubs occupy the site, none of which meet the minimum diameter requirements to be considered for this survey.

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

Document	Originator	Reference Number	Title
Topo	Architectural & Heritage Scanning	22-055-TP-01	Topographical Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and advanced 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 is located in an urban location in New Denham to the northwest side of Uxbridge.

The site is largely level and comprises two existing commercial buildings with associated hard-standing access roads, car parking and landscaping with amenity planting. The surveyed trees are predominantly around / outside the periphery.

The site is bordered: to the north by Highbridge Industrial Estate; to the east by Fasnidge Park; to the south by Union Business Park and to the west by The Grand Union Canal.

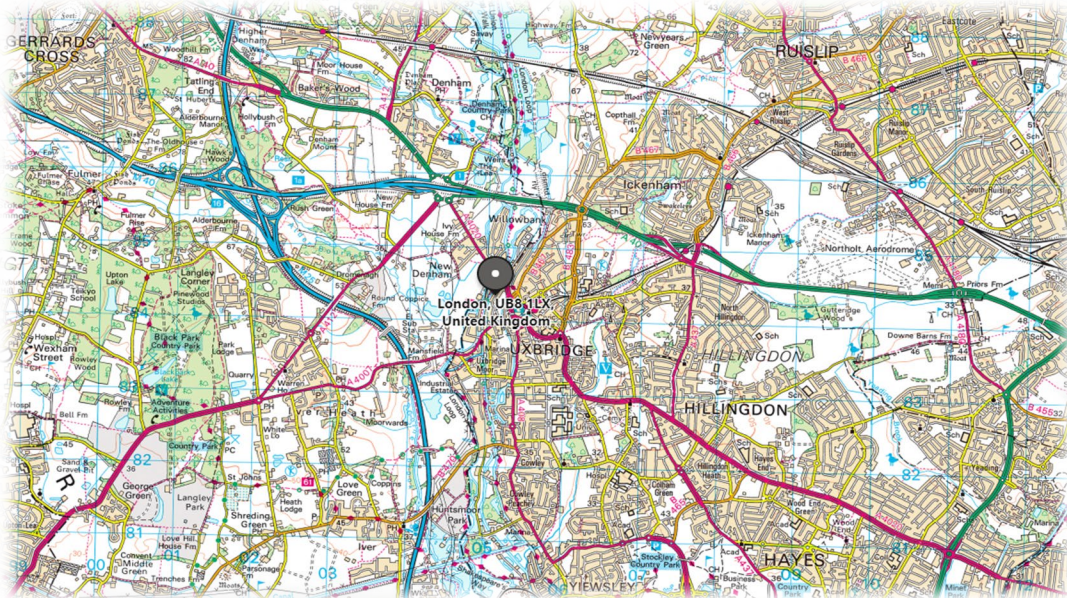


Figure 1: OS Map (Bing Maps)



Figure 2: Aerial Image of site with approximate blue line denoting area surveyed (Google Earth)

Proposed scheme

The proposal is to construct a new extension to the northeast side of the existing rentals building which provides 4 new test rooms as well as a relocated viewing room and new crew support area.

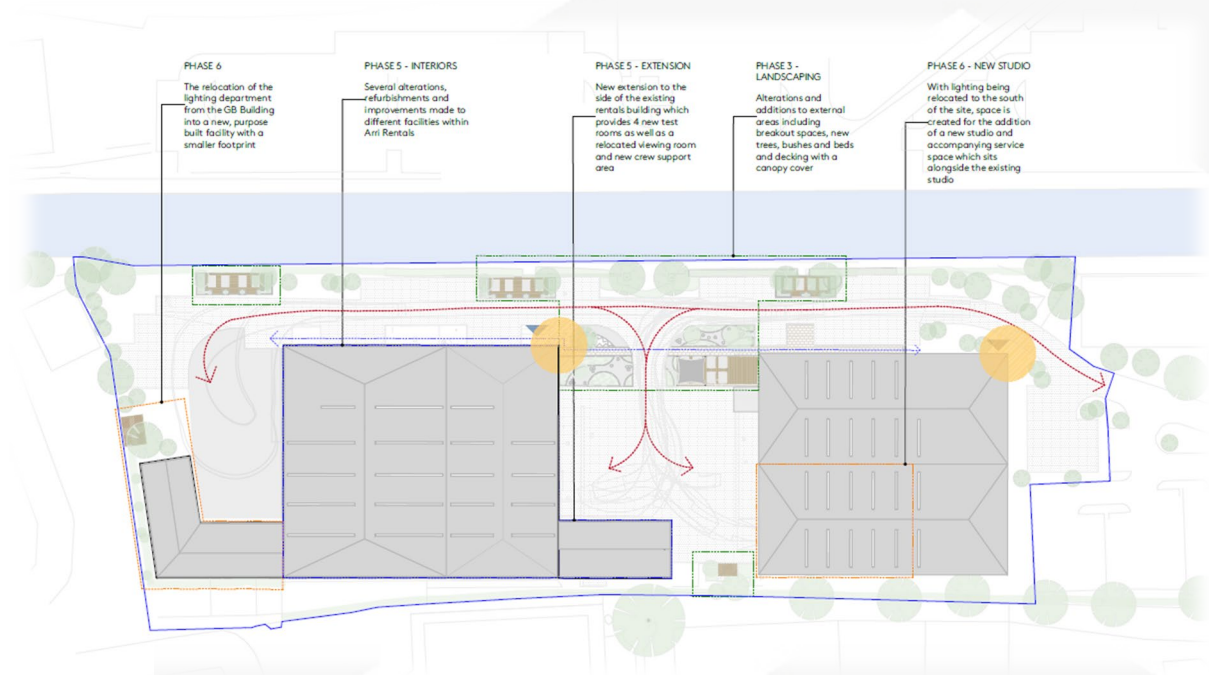


Figure 3: Proposed scheme, drawing number 739.5-

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3. 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.

4. 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:

- a) reference number (to be recorded on the tree survey plan);
- b) species (common or scientific names);
- c) height in meters (m);
- d) stem diameter in millimetres (mm) at 1.5m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
- e) branch spread in meters taken at the four cardinal compass points;
- f) height of crown clearance above adjacent ground level in meters (m);
- g) age class (newly planted, young, semi-mature, early mature, mature, over mature);
- h) physiological condition (e.g. good, fair, poor, decline and dead);
- i) structural condition (e.g. good, fair, poor or not visible);
- j) comment about the tree, its location and preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat;
- k) The retention category referring to the quality and useful contribution in years; **U** = <10yrs; **A** = >40yrs; **B** = >20yrs; **C** = >10yrs. The retention subcategory referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Appendix 1 Cascade chart for tree quality assessment).

5. 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 (.DWG 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 m².

Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m²), 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 (AIA)

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 (TPP)

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 (AMS)

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.

6. 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.

7. Appendices

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

- Survey Schedule (.PDF)
- Tree Constraints Plan drawing (.DWG & .PDF)

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

Yours Sincerely,



Jim Green MArborA
Arboricultural Consultant

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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)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	<ul style="list-style-type: none">•Trees that have 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 might be desirable to preserve; see 4.5.7.</i>			Dark red
	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 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
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 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
Category C Trees of low quality with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	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

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Appendix 2: Schedule of Trees

BS5837:2012 Tree Survey

Arbtech Consulting Ltd

Client: ARRI Rental UK
 Project: 3 Highbridge Industrial Estate
 Survey Date: 14/07/2022
 Surveyor: Jim Green



Unit 3, Well House Barns
 Chester Road
 Chester
 Cheshire
 CH4 0DH
 Phone: 01244661170

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
G1												Estimated Measurements		
A Group		28	1	800	N	7	6	M	A: 289.6	Good	C: Good			B.1.2
See comments for details					E	8	3		R: 9.6		S: Not visible	Off site linear group of Lombardy poplar and crack willow. Southernmost tree (poplar) bifurcates from base into codominant stems with tight union, pronounced ribs of adaptive/reactive growth. Fourth tree northwards (willow) with one primary stem failed at 3m and resting horizontally in understorey of hazel. Dimensions estimated for largest member of group.	20+ yrs	
					S	8	5				B: Not visible			
					W	8	5							
G2												Estimated Measurements		
A Group		5	1	150	N	2	0	SM	A: 10.2	Good	C: Good			C.1
See comments for details					E	2	2		R: 1.8		S: Good	Linear boundary group either side of boundary fence. Species include hazel, field maple, hawthorn and sumach. Trees to interior of fence topped at 1.5m, epicormic regrowth of 10mm diameter and 1m long. Dimensions estimated for largest member of group.	10+ yrs	
					S	2	0				B: Good			
					W	2	0							
T1												Estimated Measurements		
Common Alder		10	1	250	N	5	5	Y	A: 28.3	Good	C: Good			C.1
Alnus glutinosa					E	3	4		R: 3		S: Good	No significant features.	10+ yrs	
					S	5	3				B: Good			
					W	5	4							
T2												Estimated Measurements		
London Plane		22	1	1100	N	12	3	M	A: 547.5	Good	C: Good			B.1.2
Platanus x hispanica					E	12	3		R: 13.2		S: Not visible	Off site tree behind boundary fence, understorey of bamboo restricting detailed inspection of stem and base. Multi-stemmed from 4m. Spreading, open-grown crown form, minor dead wood throughout.	20+ yrs	
					S	12	3				B: Not visible			
					W	12	3							
Age Classifications:		N	Newly planted	EM	Early Mature		Condition:		C	Crown	Stems:		Ø	Diameter
		Y	Young	M	Mature				S	Stem			(Eq)	Equivalent stem diameter using BS5837:2012 definition
		SM	Semi-mature	OM	Over Mature				B	Basal area	ERC:		Estimated Remaining Contributio	

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
T3												Estimated Measurements		
Common Horse Chestnut <i>Aesculus hippocastanum</i>		9	1	400	N E S W	3 3 4 6	4 5 3 2	SM A: 72.4 R: 4.8	Fair	C: Fair S: Not visible B: Not visible		Off site, understorey tree with stem and crown bias to south and southwest. Boundary fence and ivy restrict detailed inspection of stem and base. Lowest primary at 2m to southwest grows over boundary to west. Heavy signs of infestation by Horse Chestnut Leaf Miner.		B.1 10+ yrs
T4														
Common Alder <i>Alnus glutinosa</i>		10	1	260	N E S W	2 2 2 2	4 3 3 4	SM A: 30.6 R: 3.12	Good	C: Good S: Good B: Good		Ivy-clad to 2m, small basal sprouts. Understorey of sumach and dogwood.		C.1 10+ yrs
T5														
Lombardy Poplar <i>Populus nigra 'Italica'</i>		5	1	180	N E S W	4 1 1 1	1 2 1 0	Y A: 14.7 R: 2.16	Good	C: Good S: Fair B: Fair		Grows behind concrete kerb. Possibly sprouted from sucker root from adjacent mature tree. Further sucker root spreads to north. Multiple stems therefore measurement for collective stem diameter.		C.1 10+ yrs
T6														
Lombardy Poplar <i>Populus nigra 'Italica'</i>		22	1	1750	N E S W	3 3 5 4	4 4 5 6	M A: 707 R: 15	Good	C: Fair S: Good B: Not visible		Heavily ivy-clad to ~6m. Lateral crown historically pruned at 9m and 10m to west; at 9m, 10m and 12m to east, leaving stubs 100mm diameter and up to 4m long, epicormic regeneration 10mm diameter and 2m long. Crown hole between east and west stems from 8m to apex. Debris and ivy restrict detailed inspection of base.		B.1.2 20+ yrs
T7														
Wild Cherry <i>Prunus avium</i>		7	1	160	N E S W	3 2 3 3	2 2 2 2	SM A: 11.6 R: 1.92	Good	C: Good S: Good B: Good		Growing between boundary fence and kerb. Stem and crown bias to northwest. ~3 small basal sprouts. Primary limb removed at 3m to south leaving pruning wound 50mm diameter, poor occlusion.		C.1 10+ yrs
Age Classifications:		N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature	Condition:		C S B	Crown Stem Basal area	Stems:		Ø Diameter (Eq) Equivalent stem diameter using BS5837:2012 definition	ERC: Estimated Remaining Contributio	

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment		
T8											Estimated Measurements	
Lombardy Poplar <i>Populus nigra 'Italica'</i>	10	2	478 (Eq)	N	1	2	SM	A: 103.2 R: 5.73	Fair	C: Good S: Fair B: Not visible	Off site tree next to boundary fence which restricts detailed inspection of stem and base. Historically topped at 7m, epicormic regeneration 15mm diameter and up to 3m long.	C.1.2 10+ yrs
T9											Estimated Measurements	
Lombardy Poplar <i>Populus nigra 'Italica'</i>	8	1	650	N	1	5	SM	A: 191.2 R: 7.8	Fair	C: Fair S: Fair B: Not visible	Off site tree next to boundary fence which restricts detailed inspection of stem and base. Historically topped at 7m, epicormic regeneration 15mm diameter and up to 1m long. Multiple Fungal Fruiting Bodies (FFB's) of Ganoderma australe with heavy spore print visible to west from base to 1m. Chainlink fence occluded by stem to west.	U <10 yrs
T10											Estimated Measurements	
Common Alder <i>Alnus glutinosa</i>	6	1	250	N	2	3	Y	A: 28.3 R: 3	Fair	C: Fair S: Not visible B: Not visible	Ivy-clad from base to 5m. Dense understorey of bramble and rubbish restricting detailed inspection of stem and base. Crown sparse.	C.1 10+ yrs

Appendix 3: Tree Constraints Plan

Tree Categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

Category '1' - Trees in such condition that they cannot realistically be retained as living trees in context of the current land use for longer than 10 years.

Category '2' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category '3' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category '4' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 100mm.

Root Protection Area

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPAs) should be plotted around each of the category '1', '2' and '3' trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

The calculated RPA is capped to 707m², which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

Tree Survey Report

Please refer to Arbrech Consulting Ltd. Tree Survey Report and Tree Schedule for full details on all surveyed trees, hedgerows and major shrub groups.

All trees were surveyed and categorised in accordance with the guidance as set out in the British Standard BS5837:2012 Tree in relation to design, demolition and construction - Recommendations.

We make the following recommendation to ensure that no conditions relating to arboriculture are attached to any planning consent secured:

a) An arboricultural impact assessment (AIA);

b) An arboricultural method statement (AMS); and

c) A tree protection plan (TPP).

Rev: Date: Notes:

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Project:
3 Highbridge Industrial Estate,
Oxford Road,
Uxbridge,
Middlesex,
UB8 1LX

Client:
ARRI Rental UK

Drawing:
Tree Constraints Plan

Based on:
22-055-TP-001

Drawing No:
Arbtech TCP 01

Rev:
--

Date:
Jul 2022

Scale:
1:250 @ A0

Drawn:
JAG

Key:			
Tree No:	T1	Tree Canopies:	Trunks:
RPA:	Category '1' trees	Category '2' trees	Category '3' trees
Category '4' groups:	Category '1' trees	Category '2' groups	Category '3' groups

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8. Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech TSR 01	Jim Green		Arboricultural Consultant	01	14/07/22

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