



BS 5837:2012 Arboricultural Survey

Dumers Lane, Radcliffe
for:

Westchurch Homes Limited

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BS 5837:2012 Arboricultural Survey

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For:	Westchurch Homes Limited
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1.0 Non-Technical Summary

1.1 Arboricultural Survey

1.1.1 The site is located off Dumers Lane to the North of the Beasley Industrial Estate and today comprises open areas as well as areas of self-set trees within the historic Broad Dumers Paperworks. Formerly, reservoirs, filter beds and settling tanks existed on the site, but these have since been infilled as part of the subsequent Dumers Lane Landfill.

1.1.2 A tree survey in accordance with BS 5837:2012 was carried out by Enzygo Ltd. in October 2024. Forty-seven trees and fifteen tree groups were surveyed within the site and within 15m of the site boundary. The recorded vegetation consisted predominantly of native, self-set goat willow, with ash, sycamore, and wild cherry interspersed. The majority of the recorded vegetation is semi-mature and considered of low arboricultural value (BS5837 retention category C).

1.2 Design recommendations

1.2.1 The site layout design should take into account the constraints posed by the trees on site and should seek to retain as many trees on site as possible to minimise the effect of the development on the amenity of the site and the local landscape as well as on the ecological value of the site. The retention of trees described in this report as being of moderate value should be prioritised.

1.2.2 It is recommended that the following Category U trees **T030** and **T051** be removed to improve the safety and amenity of the site. T030 is a dead-standing ash and T051 is a failed willow, now laying on the ground but not dead.

1.2.3 *BS 5837:2012 Trees in relation to design, demolition and construction* chapters 5.2 and 5.3 describe the constraints posed by existing trees and outline the potential conflict between proposed structures and retained trees and how these can be avoided or minimised.

1.2.4 New structures, hard landscape, services and construction access should be designed outside the canopy spreads and Root Protection Areas (RPA) of retained trees as far as reasonably practicable. Lowering of ground levels within the RPA of retained trees is not acceptable. Specialist solutions to manage the conflict between the proposals and retained trees are available but may have significant impact on the costs of the construction phase. These include access facilitation pruning, no-dig construction for hard surfaces, temporary ground protection, specialist engineering for buildings and foundations and trenchless solutions for services.

2.0 Overview

2.1 Introduction

2.1.1 Enzygo Limited [Enzygo] have been commissioned by Westchurch Homes Limited to prepare an Arboricultural Survey Report in accordance with BS 5837:2012 for the site off Dumers Lane in support of a planning application for the development of circa. one hundred affordable dwellings and a new vehicular access to Dumers Lane.

2.1.2 This report should assist the preparation of the site layout, allowing the designer to consider the arboricultural constraints on site, including the retention of desirable trees (high and moderate value and/or trees which are found to be legally protected) and the protection of above and below ground parts of retained trees.

2.2 Structure of the Report

2.2.1 This report presents site-specific information as follows:

- Chapter 2.0 provides a brief description of the site and its location.
- Chapter 3.0 summarises the planning background, including national and local planning policies and any relevant planning history of the site.
- Chapter 4.0 summarises the findings of the Arboricultural Survey, describing the overall species mix, age, condition and value of the trees recorded on site.
- Chapter 5.0 provides both general and site-specific design recommendations to assist with the development of any future site layouts which are sympathetic to the existing trees
- Supportive of and appended to the report are the Tree Constraints Plan in Appendix 1, the Arboricultural Survey Schedule in Appendix 2 and relevant site photographs in Appendix 3.

2.2.2 The methodology underlying the Arboricultural Survey is described in Appendix 5 – Methodology.

2.3 Site Description

- 2.3.1 The site is located in an industrial suburban location, on the land immediately Northwest of the existing Beasley Industrial Estate, East of the Eton Hill Industrial Estate and Southeast of an existing area of residential housing. Bealey's Goit passes through the site from north to south, however at the time of the survey this goit was dry.
- 2.3.2 North of the site is an area of open, greenspace known as Swan Lodges. Hutchinson's Goit, running off the River Irwell forms part the Western boundary of the site. The River Irwell is within 70m of the site. In the wider landscape, the site is located 2.7km southwest of the centre of Bury and 6.5km East of Bolton.
- 2.3.3 The site lies within Greater Manchester and falls within the administration of Bury Council.
- 2.3.4 The application boundary for the site is approximately 19395m² [1.94 hectares].

3.0 Planning background

3.1 National Planning Policy Framework (December 2023)

3.1.1 The National Planning Policy Framework (NPPF) published by the government and updated in December 2023 sets out the framework objectives for development in England. These are used by Local Planning Authorities (LPA) both during the preparation of their local planning policies as well as to guide them in making individual decisions for Planning Applications.

3.1.2 The NPPF sets out several objectives concerning the natural environment, including trees, woodland and hedgerows. In addition to broad objectives addressing biodiversity and the challenges posed by climate change (e.g. flood resilience, species selection), the following paragraphs ask for the recognition of existing trees in relation to development:

- Paragraph 136 states that *“Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure (...) that existing trees are retained wherever possible.”*
- Paragraph 180 requests that *“Planning policies and decisions should contribute to and enhance the natural and local environment by [...] recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland”*.
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3.2 Local Planning Policy

3.2.1 Policy EN6/3 of the Bury Unitary Development Plan (Adopted August 1997) seeks to retain, protect and enhance the natural environment and seeks to retain features of ecological or wildlife value. Policy EN8/2 supports and encourages new woodland and tree planting within the borough.

4.0 Arboricultural Survey

4.1 Overview

- 4.1.1 The arboricultural survey in accordance with BS 5837:2012 was carried out by Hazel Irving FdSc Arboriculture in October 2024. At the time of the survey any deciduous trees were in leaf.
- 4.1.2 Fifteen groups and forty-seven individual trees as well were recorded during the walk-over survey. These trees were scattered throughout the site, with areas of self-set, semi mature vegetation maturing into pockets of woodland in the centre of the site.
- 4.1.3 A plan of the site illustrating the location, canopy spread and Root Protection Area of each feature is included in Appendix 1 – Tree Survey and Constraints Plan
- 4.1.4 Appendix 2 - Arboricultural Survey Schedule providing survey details of each tree.
- 4.1.5 A selection of photographs showing both the site and notable individual trees, and tree groups is included in Appendix 3 – Site photographs.

4.2 Tree species, age and overall condition

- 4.2.1 The main tree species recorded during the survey were native species such as ash, wild cherry, hawthorn and goat willow and were found to be unmanaged and in fair to good condition.

4.3 Tree quality, value and significance on site and local landscape

- 4.3.1 Much of the recorded vegetation consists of self-set, semi-mature trees of low arboricultural value (BS5837 Category C). Trees of moderate value (BS5837 Category B) are scattered across the site.

4.4 Root Protection Areas (RPA)

- 4.4.1 The Root Protection Areas for each Category A to C tree and tree group has been calculated based on measured stem diameters. Both the radius and the area of each RPA are shown on the plan included in [Appendix 1 – Tree Survey and Constraints Plan](#)
- 4.4.2 [Appendix 2 - Arboricultural Survey Schedule](#) Appendix 2 - Arboricultural Survey Schedule.

4.5 Tree Preservation Orders (TPO) and Conservation Areas

- 4.5.1 On the 22nd of October 2024 the Bury Council online interactive mapping tool has confirmed that none of the trees included in this survey are protected by Tree Preservation Order and the site not located within a Conservation Area.

4.6 **Non-statutory Designations**

4.6.1 The site is located within the Red Rose Community Forest.

5.0 Design recommendations

5.1 General recommendations

- 5.1.1 Design decisions should be based on the recommendations in chapters 5.2 and 5.3 of *BS 5837:2012 Trees in relation to design, demolition and construction* which describe the constraints posed by existing trees and outline the potential conflict between proposed structures and retained trees and how these can be avoided or minimised.

5.2 Maximise tree retention

- 5.2.1 It is recommended that the site layout design considers the safe retention of any trees which have been assigned the retention categories A, B and C as far as practicable to retain the ecological value and the mature character of the site and to minimise the potential visual impact the development may have on the surrounding landscape. The retention of legally protected trees should be a priority.
- 5.2.2 The trees most desirable for retention are the trees of moderate arboricultural value, BS5837 Category B.

5.3 Minimise residual effect of trees on development

- 5.3.1 In addition to the desired retention of existing trees as described in 5.2 above, it is advised to consider the impacts any retained trees would have on the development, including excessive shading of sensitive building elevations and open spaces and the increased requirement for routine tree management near built structures (i.e. regular crown reduction near buildings).

5.4 Minimise residual effect of development on retained trees

Proposed buildings, structures and hard surfacing

- 5.4.1 The site layout design should allow generous distances between vertical structures and tree canopies and allow for the expected future expansion of crowns.
- 5.4.2 The location of new structures and hard surfacing within the canopy spread of existing trees and tree groups should be considered carefully. Excessive management of these trees to facilitate any such elements may cause an imbalance of stem/crown ratio, unbalanced crowns or unnatural shape of specific tree species. The future requirement for continuous tree management to limit any conflicts should remain minimal.
- 5.4.3 Where built structures and hard landscape elements are proposed within the Root Protection Areas of existing trees, specialist methodologies may have to be adopted to manage the

conflict. These solutions may have an impact on costs of the construction phase and it may be desirable to keep this to a minimum by developing a layout which is sensitive to the existing trees. Any vertical elements such as fences should be proposed at such a distance from tree stems as to allow for the future increase of the stem diameter and root buttresses.

Utilities and earthworks

- 5.4.4 Underground services and any proposed design elements requiring foundations (e.g. boundary treatments, street furniture, hard surfaces) should be placed outside of Root Protection Areas where possible.
- 5.4.5 Excavations for underground services may have an impact where they are proposed within the RPA of retained trees. Proposed above ground services may further conflict with parts of tree canopies.
- 5.4.6 The reduction of ground levels within the Root Protection Areas of retained trees are not acceptable. Where this can't be avoided, the removal of the tree may have to be considered.

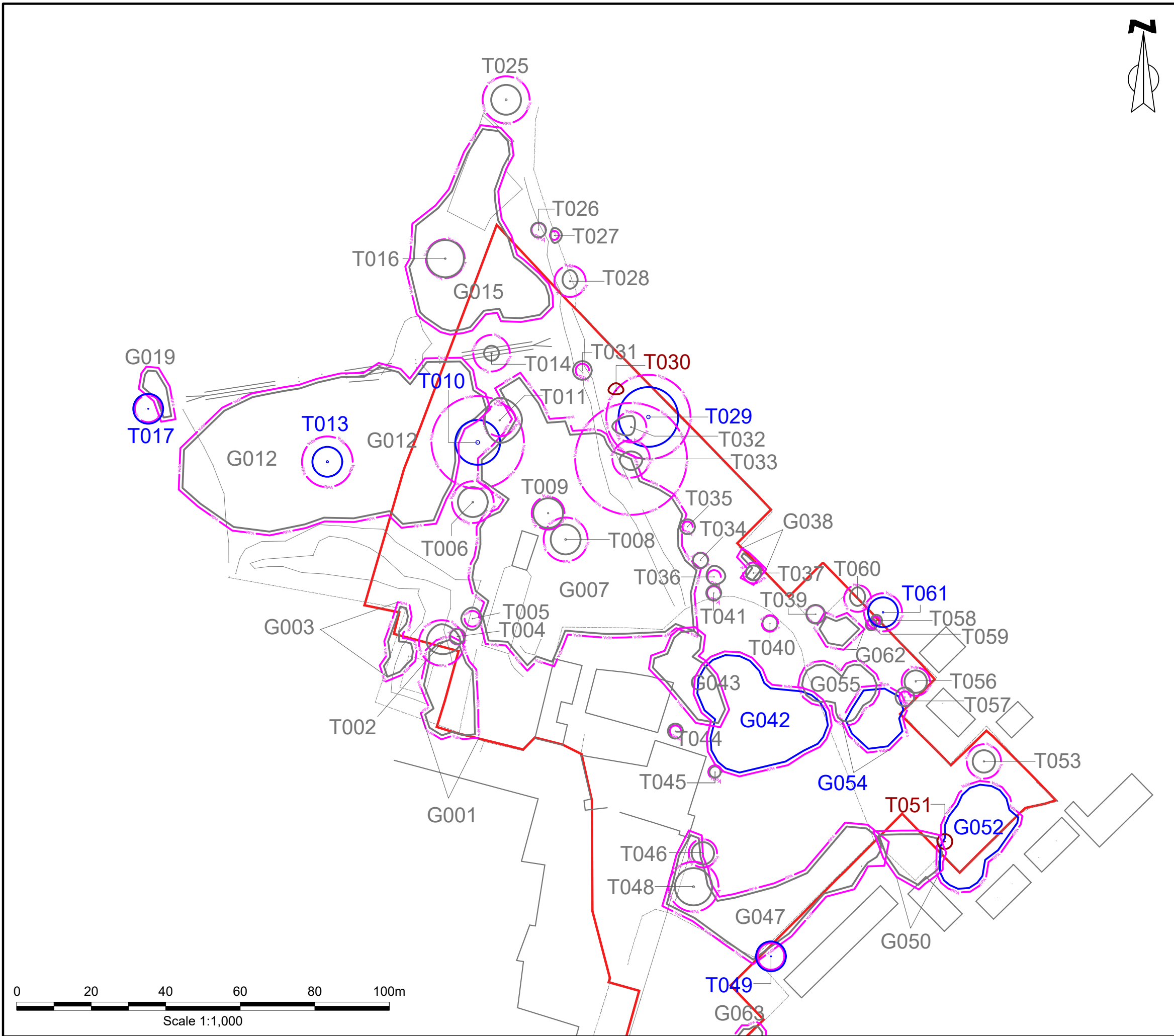
Construction operations

- 5.4.7 Construction operations near retained trees are likely to cause accidental damage of tree trunks and low hanging branches. Where possible, the design should allow for reasonable distances between new structures and above ground parts of retained trees, including sufficient clear working areas around those structures.
- 5.4.8 Vehicle and plant movement during construction may further cause ground compaction which could lead to irreversible damage of tree roots and the rooting environment within the RPA of retained trees. The construction phase plans should ensure that site access routes, site compounds and internal routes are proposed outside the Root Protection Areas (RPA) of retained trees.

5.5 Trees to be removed

- 5.5.1 It is recommended that Category U trees T030 and T051 are removed to improve the safety and amenity of the site. T030 is a dead-standing ash and T051 is a failed willow, now laying on the ground but not dead.

6.0 Appendix 1 – Tree Survey and Constraints Plan



KEY:

- Site Boundary
- Tree Category A
- Tree Category B
- Tree Category C
- Tree Category U
- Root Protection Area (RPA)

P01	23/10/24	Issued for comment / approval	HI	VM	VM
Rev	Date	Description	DRA	CHK	APP

Project

Dumers Lane, Radcliffe

Client

Westchurch Homes Limited

Drawing Title

Tree Constraints Plan (Sheet 1 of 2)

Scale 1:1000	Date 23/10/24	Status Preliminary
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DWG No.

893.002-ENZ-XX-XX-DR-Z-0001

Revision

P01

Bristol

01454 269 237

Manchester

0161 413 6444

Sheffield

0114 321 5151

Cardiff

02920 023 700

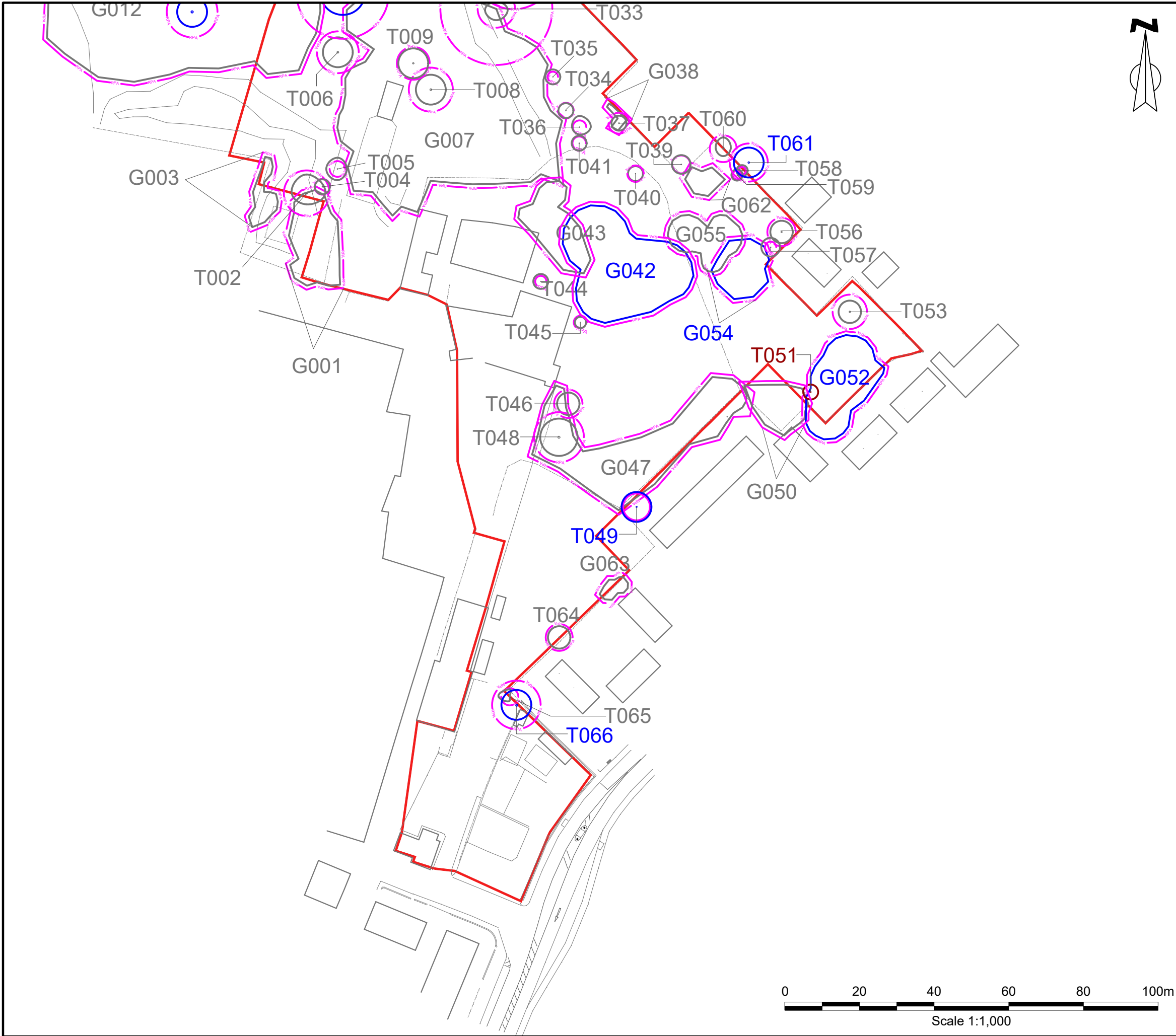
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KEY:

- Site Boundary
- Tree Category A
- Tree Category B
- Tree Category C
- Tree Category U
- Root Protection Area (RPA)

P01	23/10/24	Issued for comment / approval	HI	VM	VM
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Project

Dumers Lane, Radcliffe

Client

Westchurch Homes Limited

Drawing Title

Tree Constraints Plan (Sheet 2 of 2)

Scale 1:100	Date 23/10/24	Status Preliminary
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DWG No.

893.002-ENZ-XX-XX-DR-Z-0001

Revision

P01

Bristol
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7.0 Appendix 2 - Arboricultural Survey Schedule

7.1 Information recorded and symbols used

Ref	Sequential tree reference as per Tree Survey Plan
Species	Common name (<i>Scientific name</i>)
Ht (m)	Estimated tree height in metres
Stem dia (cm)	Stem diameter measured in accordance with BS5837:2012 Annex C
Canopy Spread	Estimated branch spread (in metres) at four cardinal points
Clear crown	Height of the lowest branch(es) including cardinal point(s) where applicable
Life stage	YNG -Young SM -Semi-mature EM - Early mature M - Mature OM - Over-mature (including veteran trees)
RULE	Remaining useful life expectancy estimated in years
Cond.	G - Good F - Fair P - Poor
Notes	Including observations and notes on: Defects and other structural and physiological abnormalities, nesting birds, bat roost potential (where possible), notes on surrounding land incl. soil compaction, Tree Preservation Orders and Conservation Area (where information is available), notes on limited access/inspection, off site location and preliminary management recommendations (in italics)
BS Cat.	Retention category and sub-category in accordance with BS5837:2012 A - High Quality1 - Mainly arboricultural value B - Moderate Quality2 - Mainly landscape value C - Low Quality3 - Mainly cultural value U - Unsuitable for retention
RPA (m)	Radius of Root Protection Area calculated in metres (Radius of RPA= 12x stem diameter). This will usually be capped at 15m for trees with a stem diameter larger than 1.25m
RPA (m²)	Area of Root Protection Area (relevant if RPA is not circular due to pre-existing site conditions, incl. water courses, retaining structures and building foundations). Rounded up to nearest m ² . This will usually be capped at 707m ² for trees with a stem diameter larger than 1.25m.

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
G001	Rowan (<i>Sorbus aucuparia</i>) Goat willow (<i>Salix caprea</i>) Wild cherry (<i>Prunus avium</i>)	7.0	130#	Semi Mature	40+ Years	Self set vegetation providing screening to existing industrial estate.	C1,2	See Plan for Canopy Extents				2.0	0.0	350	Good	Fair
G003	Goat willow (<i>Salix caprea</i>)	5.0	90#	Semi Mature	40+ Years	Young to semi-mature self set boundary vegetation.	C1,2	See Plan for Canopy Extents				1.0	0.0	124	Good	Fair
G007	Goat willow (<i>Salix caprea</i>)	7.0	200#	Semi Mature	40+ Years	Self-set, semi-mature woodland of goat willow, sycamore, ash. The majority of trees within the woodland are young to semi mature goat willow. The ash stems appear to show some signs of Ash Dieback Disease however a summer survey would be required to assess the severity of canopy dieback.	C1,2	See Plan for Canopy Extents				2.0	0.0	3098	Good	Fair
G012	Goat willow (<i>Salix caprea</i>)	7.0	200#	Semi Mature	40+ Years	Self set, young to semi-mature, predominantly goat willow woodland. Occasional small diameter dead stems throughout.	C1,2	See Plan for Canopy Extents				2.0	0.0	2555	Good	Fair
G015	Pedunculate oak (<i>Quercus robur</i>) Goat willow (<i>Salix caprea</i>) Wild cherry (<i>Prunus avium</i>)	8.0	200#	Semi Mature	40+ Years	Self-set, semi-mature woodland of predominantly goat willow and wild cherry.	C1,2	See Plan for Canopy Extents				2.0	0.0	1188	Good	Fair
G019	Wild cherry (<i>Prunus avium</i>) Common hawthorn (<i>Crataegus monogyna</i>)	5.0	150#	Semi Mature	40+ Years	Boundary vegetation off-site. Overhanging boundary.	C1	See Plan for Canopy Extents				0.0	0.0	82	Good	Good
G038	Mixed species (<i>Mixed species</i>)	4.0	80	Semi Mature	20+ Years	5 domestic fruit trees. Species include apple, plum, pear.	C1	See Plan for Canopy Extents				1.0	0.0	38	Good	Good

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
G042	Mixed species (Mixed species)	8.0	200#	Mature	40+ Years	A group of mature goat willows with large, round, wide crowns. Each of the 4 trees is Multi-stemmed with an average of approximately 10 stems at 200mm dbh.	B1	See Plan for Canopy Extents				2.0	0.0	585	Good	Good
G043	Common hawthorn (<i>Crataegus monogyna</i>) Goat willow (<i>Salix caprea</i>)	6.0	150#	Semi Mature	40+ Years	No major visible defects.	C1,2	See Plan for Canopy Extents				0.0	0.0	321	Good	Fair
G047	Common ash (<i>Fraxinus excelsior</i>) Common hawthorn (<i>Crataegus monogyna</i>) Goat willow (<i>Salix caprea</i>) Wild cherry (<i>Prunus avium</i>)	6.0	100#	Semi Mature	40+ Years	Boundary vegetation.	C1	See Plan for Canopy Extents				0.0	0.0	924	Good	Fair
G050	Sumac (<i>Rhus sp.</i>) Laurel (<i>Laurus sp.</i>) Elder (<i>Sambucus nigra</i>)	3.0	100#	Semi Mature	20+ Years	Ivy throughout	C1	See Plan for Canopy Extents				0.0	0.0	180	Fair	Fair
G052	Silver birch (<i>Betula pendula</i>) Goat willow (<i>Salix caprea</i>)	8.0	400#	Early Mature	40+ Years	No major visible defects.	B1,2	See Plan for Canopy Extents				2.0	0.0	292	Good	Fair
G054	Sycamore (<i>Acer pseudoplatanus</i>)	10.0	250#	Early Mature	40+ Years	A group of tightly packed sycamores with a single homogeneous canopy	B1	See Plan for Canopy Extents				2.0	0.0	236	Good	Good

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
G055	Wild cherry (<i>Prunus avium</i>) Common holly (<i>Ilex aquifolium</i>) Common hawthorn (<i>Crataegus monogyna</i>) Ash (<i>Fraxinus sp.</i>)	5.0	150#	Early Mature	40+ Years	Early mature hawthorn with Self-set vegetation beneath.	C1	See Plan for Canopy Extents				2.0	0.0	155	Good	Fair
G062	Elder (<i>Sambucus nigra</i>) Wild cherry (<i>Prunus avium</i>) Common holly (<i>Ilex aquifolium</i>) Common hawthorn (<i>Crataegus monogyna</i>)	6.0	150#	Early Mature	40+ Years	No major visible defects.	C1	See Plan for Canopy Extents				0.0	0.0	86	Fair	Fair
G063	Common ash (<i>Fraxinus excelsior</i>)	5.0	100,200,100,70,250	Semi Mature	20+ Years	Boundary trees fence included in stems.	C1	See Plan for Canopy Extents				2.0	0.0	54	Fair	Fair
T002	Goat willow (<i>Salix caprea</i>)	8.0	240,100,200,190,330,100	Early Mature	40+ Years	Multi-stemmed from ground level. Large surface roots are visible, with no signs of damage or lifting.	C1	5.0	5.0	3.0	4.0	2.0	6.1	117	Good	Fair
T004	Goat willow (<i>Salix caprea</i>)	5.0	80#	Semi Mature	40+ Years	Self-set and multi-stemmed.	C1	2.0	2.0	2.0	2.0	1.0	2.1	14	Good	Fair
T005	Goat willow (<i>Salix caprea</i>)	5.0	100#	Semi Mature	40+ Years	Self-set and multi-stemmed. Limited detailed inspection due to brambles.	C1	3.0	2.5	3.0	3.0	1.0	2.1	14	Good	Fair
T006	Goat willow (<i>Salix caprea</i>)	6.0	130,120,170,170,150,130,170,120,100,140,130	Early Mature	40+ Years	Multi-stemmed from ground level. Large visible surface roots. Small hollow on southern stem with good occlusion from 0.3 to 1m from ground level.	C1	4.0	4.0	4.0	4.0	2.0	5.6	99	Good	Fair
T008	Goat willow (<i>Salix caprea</i>)	7.0	310,270,270	Early Mature	40+ Years	Multi-stemmed tree. Northern leader is dead with exposed wood. Remove dead leader	C1	4.0	4.0	4.0	4.0	3.0	5.9	109	Good	Fair

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
T009	Goat willow (<i>Salix caprea</i>)	7.0	370	Early Mature	40+ Years	Minor shade wood in lower crown. Stem slightly leaning East.	C1	4.0	4.0	4.0	4.0	2.0	4.4	61	Good	Fair
T010	Goat willow (<i>Salix caprea</i>)	7.0	250,320,310,270,380,270,300,480,190,150,210,300	Mature	40+ Years	Large, multistemmed goat willow. Major and minor deadwood. Exposed wood on small, Eastern leader, with a partially dead canopy above this point. Remove dead leader.	B1	6.0	6.0	6.0	6.0	2.0	12.4	483	Good	Fair
T011	Sycamore (<i>Acer pseudoplatanus</i>)	9.0	360	Early Mature	40+ Years	Single-stemmed stemmed sycamore with unbalanced canopy, weighted eastward. Major and minor deadwood in lower crown.	C1	6.0	6.0	6.0	4.0	2.0	4.3	58	Good	Fair
T013	Aspen (<i>Populus tremula</i>)	8.0	570	Early Mature	40+ Years	Large diameter stem Aspen within wider willow woodland group. Single-stemmed and slightly leaning northeast.	B1	4.0	4.0	4.0	4.0	5.0	6.8	145	Good	Good
T014	Common hawthorn (<i>Crataegus monogyna</i>)	3.0	30,400,60	Semi Mature	40+ Years	No major visible defects.	C1	2.0	2.0	2.0	2.0	1.0	4.9	75	Good	Good
T016	Not identified (<i>Not identified</i>)	8.0	430	Early Mature	40+ Years	Historic branch tear-out in lower crown.	C1	5.0	5.0	5.0	5.0	2.0	5.2	85	Good	Good
T017	Norway maple (<i>Acer platanoides</i>)	9.0	300#	Early Mature	40+ Years	Single-stemmed and vertical with a well-balanced crown. Limited detailed inspection due to lack of access. Off-site tree.	B1	4.0	4.0	4.0	4.0	2.0	3.6	41	Good	Good
T025	Goat willow (<i>Salix caprea</i>)	7.0	300,100,200,150,250,100,200	Early Mature	20+ Years	off-site tree. Major and minor deadwood.	C1	4.0	4.0	4.0	4.0	0.0	6.3	125	Good	Fair
T026	Common holly (<i>Ilex aquifolium</i>)	5.5	90	Semi Mature	40+ Years	No major visible defects.	C1	2.0	2.0	2.0	2.0	0.0	1.9	11	Good	Good
T027	Elder (<i>Sambucus nigra</i>)	3.0	100	Mature	10+ Years	Boundary vegetation.	C1	2.0	2.0	2.0	1.0	1.5	1.2	5	Fair	Fair
T028	Elder (<i>Sambucus nigra</i>)	4.5	300,150,100	Over Mature	10+ Years	Limited detailed inspection due to dense ivy throughout.	C1	3.0	2.0	2.0	2.0	1.0	4.2	55	Poor	Fair

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
T029	Goat willow (<i>Salix caprea</i>)	8.0	260,150,220,510,440,200,500	Mature	40+ Years	Impressive goat willow with a wide spreading crown. Hanger in northern lower crown. Major and minor deadwood throughout crown. Deadwood stubs. Recent tear-outs in southern lower crown. Recent bark damage to buttress roots.	B1	8.0	8.0	8.0	8.0	2.0	11.3	401	Good	Fair
T030	Common ash (<i>Fraxinus excelsior</i>)	7.0	150	Dead	Dead	Deadstanding tree.	U	2.0	2.0	1.0	2.0	3.0	0.0	0	Poor	Fair
T031	Common ash (<i>Fraxinus excelsior</i>)	5.0	150#	Semi Mature	20+ Years	Self-set tree. Limited detailed inspection due to brambles and debris.	C1	2.5	2.5	2.5	2.5	2.0	1.8	10	Good	Good
T032	Goat willow (<i>Salix caprea</i>)	4.0	210,100,230,100	Early Mature	20+ Years	Heavily leaning West.	C1	3.0	1.0	2.0	5.0	2.0	4.1	53	Good	Fair
T033	Goat willow (<i>Salix caprea</i>)	5.0	150,130,100,100,100,100,120,180,150,100,00,150,250	Early Mature	30+ Years	No major visible defects.	C1	2.0	3.0	3.0	3.0	1.0	15.0	707	Good	Fair
T034	Goat willow (<i>Salix caprea</i>)	5.0	70	Semi Mature	40+ Years	Self-set tree.	C1	2.0	2.0	2.0	2.0	1.0	2.1	14	Good	Good
T035	Sycamore (<i>Acer pseudoplatanus</i>)	5.0	80	Semi Mature	40+ Years	Self-set tree.	C1	2.0	2.0	2.0	2.0	2.0	1.4	6	Good	Good
T036	Silver birch (<i>Betula pendula</i>)	6.0	110,100	Semi Mature	40+ Years	Twin-stemmed from ground level.	C1	3.0	3.0	2.0	2.0	1.5	1.8	10	Good	Good
T037	Austrian pine (<i>Pinus nigra austriaca</i>)	5.0	230	Semi Mature	40+ Years	No major visible defects.	C1	2.0	2.0	2.0	2.0	2.0	2.8	25	Good	Good
T039	Silver birch (<i>Betula pendula</i>)	8.0	200	Semi Mature	40+ Years	Off-site tree.	C1	2.5	2.5	2.5	2.5	2.0	2.4	18	Good	Good
T040	Common ash (<i>Fraxinus excelsior</i>)	7.0	180	Semi Mature	20+ Years	Leaves have dropped. Reinspect canopy in spring.	C1	2.0	2.0	2.0	2.0	2.0	2.2	14.00	Fair	Good
T041	Common ash (<i>Fraxinus excelsior</i>)	5.0	150	Semi Mature	20+ Years	Self-set tree.	C1	2.0	2.0	2.0	2.0	3.0	1.8	10	Good	Good
T044	Goat willow (<i>Salix caprea</i>)	5.0	90	Young	40+ Years	Self-set tree.	C1	2.0	2.0	2.0	2.0	2.0	1.5	7	Good	Good
T045	Common ash (<i>Fraxinus excelsior</i>)	6.0	150	Semi Mature	20+ Years	Sparse canopy due to Ash Dieback Disease.	C1	1.5	1.5	1.5	1.5	2.0	1.8	10	Fair	Good

Ref.	Species	Height (m)	Stem diameter(s) (mm)	Life Stage	Rem. Contrib.	General Observations	Retention Category	North	East	South	West	Crown Clearance (m)	RPA Radius	RPA Area	Physiological Cond	Structural Cond
T046	Sycamore (<i>Acer pseudoplatanus</i>)	6.0	120,110,90,100,100,200,60,60	Semi Mature	40+ Years	Multi-stemmed from ground level.	C1	3.0	3.0	3.0	3.0	2.0	3.8	45	Good	Fair
T048	Goat willow (<i>Salix caprea</i>)	7.0	250,200,210,100,200,300,150	Early Mature	40+ Years	Multi-stemmed from ground level.	C1	5.0	5.0	5.0	5.0	2.0	6.7	141	Good	Fair
T049	Lawson cypress (<i>Chamaecyparis lawsoniana</i>)	12.0	300#	Early Mature	40+ Years	Off-site tree.	B1,2	4.0	4.0	4.0	4.0	0.0	3.6	41	Good	Good
T051	Goat willow (<i>Salix caprea</i>)	5.0	200,100,100	Early Mature	10+ Years	Fallen tree. Remove.	U	2.0	2.0	2.0	2.0	0.0	0.0	0	Fair	Poor
T053	Common ash (<i>Fraxinus excelsior</i>)	9.0	380	Semi Mature	40+ Years	Single-stemmed and vertical.	C1	3.0	3.0	3.0	3.0	1.0	4.6	66	Good	Good
T056	Common ash (<i>Fraxinus excelsior</i>)	8.0	250,200	Semi Mature	20+ Years	Self-set boundary tree. Very healthy, vigorous canopy.	C1	3.0	3.0	3.0	3.0	2.0	3.8	45	Good	Good
T057	Goat willow (<i>Salix caprea</i>)	5.0	90,60,60	Semi Mature	40+ Years	Self-set boundary tree.	C1	2.5	2.5	2.5	2.5	1.0	1.5	7	Good	Good
T058	Wild cherry (<i>Prunus avium</i>)	4.0	80	Semi Mature	40+ Years	Single-stemmed. Bark wound on lower stem.	C1	1.5	1.5	1.5	1.5	2.0	1.0	3	Good	Good
T059	Common ash (<i>Fraxinus excelsior</i>)	4.0	50	Young	20+ Years	Previously topped.	C1	1.5	1.5	1.5	1.5	1.0	1.2	5	Fair	Fair
T060	Sycamore (<i>Acer pseudoplatanus</i>)	10.0	300#	Early Mature	40+ Years	Boundary tree.	C1	3.0	2.0	2.0	2.0	4.0	3.6	41	Good	Good
T061	Flowering cherry (<i>Prunus Serrulata</i>)	9.0	300,300	Mature	40+ Years	Garden tree.	B1	4.0	4.0	4.0	4.0	2.0	5.1	82	Good	Good
T064	Common ash (<i>Fraxinus excelsior</i>)	7.0	300	Semi Mature	20+ Years	Sparse canopy due to Ash Dieback Disease.	C1	3.0	3.0	3.0	3.0	3.0	3.6	41	Fair	Fair
T065	Elm (<i>Ulmus sp.</i>)	6.0	190	Semi Mature	20+ Years	Suppressed form.	C1	2.0	0.0	1.0	3.0	4.0	2.3	17	Good	Fair
T066	Elm (<i>Ulmus sp.</i>)	9.0	280,330,330	Early Mature	40+ Years	Cables through central canopy.	B1	4.0	4.0	4.0	4.0	3.0	6.5	133	Good	Good

8.0 Appendix 3 – Site photographs



Plate 1: T066, Cat B Elm

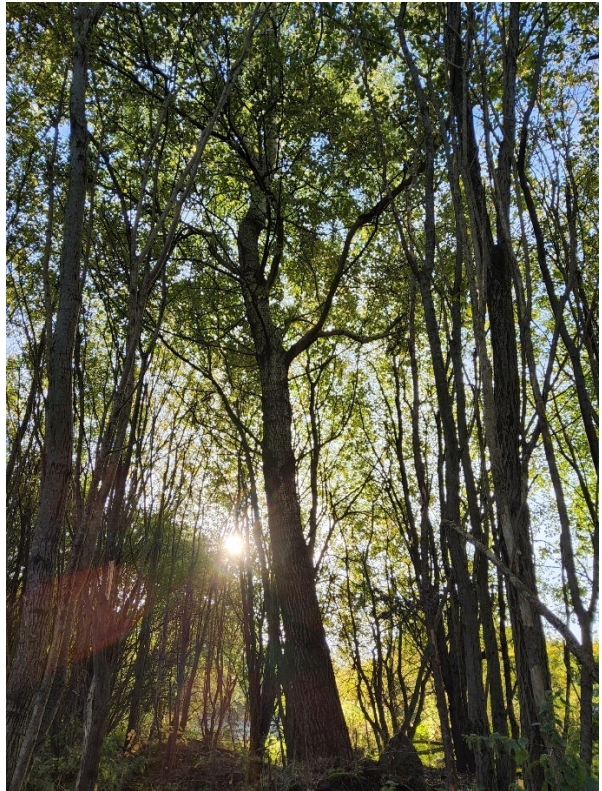


Plate 2: T013, Cat B Aspen



Plate 3: T010, Cat B Goat Willow



Plate 4: T029, Cat B Goat Willow

9.0 Appendix 5 – Methodology

9.1 Introduction

- 9.1.1 This report and the methodology adopted to carry out the Arboricultural Survey is based on recommendations outlined in *British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction- Recommendations*. This was published by BSI Standards Limited and came into effect on 30th April 2012. It supersedes BS 5837:2005 which is withdrawn.

9.2 Arboricultural Survey

- 9.2.1 A tree survey or arboricultural survey is a ground-based visual assessment of existing trees and tree groups on a site. It records the location of trees, the species, the estimated height and canopy spread, the stem diameter, and the tree's life stage, remaining useful life expectancy (RULE) and overall condition. Any distinctive features and abnormalities such as structural defects and physiological condition which may or may not have an adverse effect on the health or stability of the tree are also recorded, together with any signs of nesting birds and bat roost potential. Where ground conditions may influence the tree's growth, health and stability, such as water logging, ground compaction and severe level changes, this would also be recorded.
- 9.2.2 The site walkover includes an assessment of the overall value and quality of the trees on site by assigning a retention category to each tree and tree group. This assists stakeholders in deciding which trees should be removed or retained in the event of development occurring. There are four categories: A (high quality), B (moderate quality), C (low quality) and U (unsuitable for retention). For trees in categories A to C, these should qualify under one or more subcategories: 1 (mainly arboricultural qualities), 2 (mainly landscape qualities) and 3 (mainly cultural values).
- 9.2.3 The findings of the tree survey are recorded in an Arboricultural Survey Schedule supported by a Tree Survey and Tree Constraints Plan, both appended to the report.
- 9.2.4 The survey includes all trees which have a stem diameter of at least 75mm at 1.5m height or measured in accordance with BS 5837:2012 Annex C.
- 9.2.5 The tree survey usually records individual trees (labelled "T" on the Tree Survey and Tree Constraints Plan and in the Tree Survey Schedule), but may also group trees of similar age, species and condition into Groups (labelled "G"). Trees may also be grouped where they form a homogeneous unit (e.g. tree belts and woodland groups) which is unlikely to be directly

affected by the development (labelled “G” for small groups or “W” for Woodland Groups, as appropriate). Hedgerows are also recorded where present (labelled “H”).

- 9.2.6 To determine the location of trees, groups and hedgerows on site, Enzygo Ltd. and any surveyor sub-consultants use a handheld GPS tracking device with an accuracy of up to 1-2m. It enables the surveyor to plot trees onto a base plan, usually a digital copy of a topographic survey or an OS map tile, and to simultaneously record all tree survey information required for a full tree survey schedule to BS 5837:2012.
- 9.2.7 Following the completion of the site survey this is then uploaded into a Computer Aided Design (CAD) programme in order to produce the Tree Survey and Tree Constraints Plan, with the tree survey information converted into a corresponding Tree Survey Schedule.
- 9.2.8 The survey includes any trees outside the site boundary which may be affected by any development proposals by overhanging canopies or by Root Protection Areas which are likely to extend into the site. These trees are normally found within 15m from the site boundary.
- 9.2.9 In addition to a site walk-over survey, a desk-study is carried out which includes the calculation of Root Protection Areas (RPA) in accordance with BS 5837:2012 clause 4.6 as the minimum area of land around the stem of a tree which should be protected during construction.
- 9.2.10 The desk study includes liaison with the relevant local authority to establish whether any of the trees on site are protected by Tree Preservation Order (TPO) or whether Conservation Areas affect the legal status of any trees. Some local authorities provide online mapping tools on their website which identify any legal tree protection.

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