

Arboricultural Impact Assessment (AIA)

Star Radcliffe (Cyclops)
Prepared for: Morgan Sindall

Prepared by Simon Brain *Chartered arboriculturist*

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1 Tree Protection Plan

2 Survey sheets (updated as a result of AIA)

1.0 Introduction

1.1 Instruction, Scope, Methodology, Mitigation & Limitations

- 1.2 My name is Simon Brain, I am a chartered arboriculturist, with 25 years' experience holding the LANTRA Professional Tree Inspection certificate. I have been instructed by the client to prepare the following Arboricultural Impact Assessment for land at Star Radcliffe (Cyclops junction)
- 1.3 This Arboricultural Implications Assessment (AIA) is based on the proposed developments as shown on the Proposed and incorporated into the Tree Protection Plans (TPP) in Appendix 1 of this report.
- 1.4 The assessment will be carried out in line with the recommendations in BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and will evaluate the direct and indirect impacts of the proposed design and where necessary recommend mitigation.
- 1.5 The AIA considers constraints posed above and below ground and where appropriate makes recommendations to mitigate impacts associated with development sites and retained trees.
- 1.6 Where specialist design, construction techniques or in areas where supervision of the works is required a Special Measure Area (SMA) has been shown on the TPP for the study areas.
- 1.7 Below ground constraints are influenced by the root protection area and are determined in line with the recommendations set out in BS 5837:2012. These recommendations quantify the root protection area based on a measured stem diameter in accordance with Annex C, and the root protection area determined from Annex D.
- 1.8 It is important to understand that when considering the Root Protection Area (RPA) with regards to the circular plot as delineated on the TPP

that a number of site factors can influence root morphology and disposition of tree roots.

- 1.9 Above ground constraints are considered above and below ground and in line with the recommendations in BS 5837:2012 to include; shade, dominance, current and future crown spread as well as the ultimate height of those retained trees.
- 1.10 Impacts associated with development sites and retained trees can be associated with single or multiple site operations that can subject trees to multiple impacts (*root severance, compaction, loss of photosynthetic material*), where this is applicable it will be highlighted in the AIA.
- 1.11 The mitigation measures proposed in this report are essential to ensure that trees marked for retention are adequately protected during the period of post/preconstruction.

2.0 Arboricultural Impact Assessment

2.1 Area for proposed development

2.2 The proposed development has been embedded within the Tree Constraints Plan which indicates the following developments associated with this site to have an arboricultural impact:

- Installation of proposed development infrastructure requiring tree removal

2.3 The arboricultural impacts of these items have been identified below.

2.3.1 Installation of proposed development access requires the removal of the following tree references:

- T64;T65;T66;T67;T68;T69;T71;T72 and G7 (partially removed)

3.0 Tree Preservation Orders

3.1 We have not checked over Conservation Area or Tree Preservation Order and if they apply to this site.

4.0 Trees to be removed and retained

4.1 The following trees have been identified for removal due to their condition (Category U): T54

4.2 A total of eight trees and a partial area of G7 are identified to be removed for the direct impact of development as listed in section 2.3.2.

4.3 The remaining trees are due to be retained and protected as outlined on the TPP by methodology needed in an AMS.

5.0 Root Protection Areas (RPA)-modifications

5.1 Root Protection Areas have been plotted in line with the guidance given in BS 5837: 2012 where ground constraints have had or are likely to effect the root morphology of trees e.g. where underground utilities or

building foundations have obstructed root growth this shall require formal confirmation by excavation to establish presence or absence of significant rooting material. No RPA modifications have been shown for this scheme.

6.0 Post construction considerations

6.1 Not applicable due to nature of site.

7.0 Tree pruning to facilitate development and future pruning

7.1 There are requirements for minor levels of tree pruning to facilitate the proposed development as stated in the survey sheets.

8.0 New surfacing and ground level modifications

8.1 No new surfacing is required in RPA of retained trees.

9.0 Construction Exclusion Zones and Special Measure Areas

9.1 The Construction Exclusion Zone has been shown as a black fenced polyline on the TPP in Appendix 1 and shall be constructed using heras panels and rubber feet securely staked to the ground.

9.2 The CEZ must be installed as signed off as fit for purpose before any other works commence on site.

10.0 Site supervision and monitoring

10.1 Where a tree has been delineated on the TPP as requiring retention there will be a requirement to oversee construction operations in these areas in order to ensure that no damage occurs to the retained tree.

10.2 To ensure that there is an auditable system of site monitoring, reports will be compiled by an appointed arborist and following site visits they issued to the site manager and design team, copies of which will be available on site at all times for inspection by a Council planning/Tree officer.

11.0 Installation of below ground infrastructure

- 11.1 No detailed plans have been provided specifying the location of site utilities
- 11.2 Specialist advice with regards to the position of utilities will need to be sought from engineers and must be reviewed by the consulting arboriculturist prior to commencement on site.
- 11.3 The usual construction techniques for installing site utilities within an RPA will be unacceptable due to the level of root severance that would occur. The impact of root severance will have a detrimental effect on tree health as trees require a healthy root system in order to maintain water and mineral uptake from the soil. Trees need to maintain a balance between shoot and root growth to ensure that the resources supplied by each can meet the demand of the other. Severance of tree roots caused by trenching can lead to reduced water uptake which in turn impacts on the trees ability to supply water to the canopy, resulting in desiccation. A further complication associated with root severance can be problems associated with tree stability. The tree relies on an intact root system in order to maintain stability; this stability will be compromised by root severance.
- 11.4 The use of trenchless techniques can be acceptable provided the depth of service run that is excavated is below the anticipated root depth.

12.0 Design change requirements

- 12.1 Design change requirements have not been necessary.

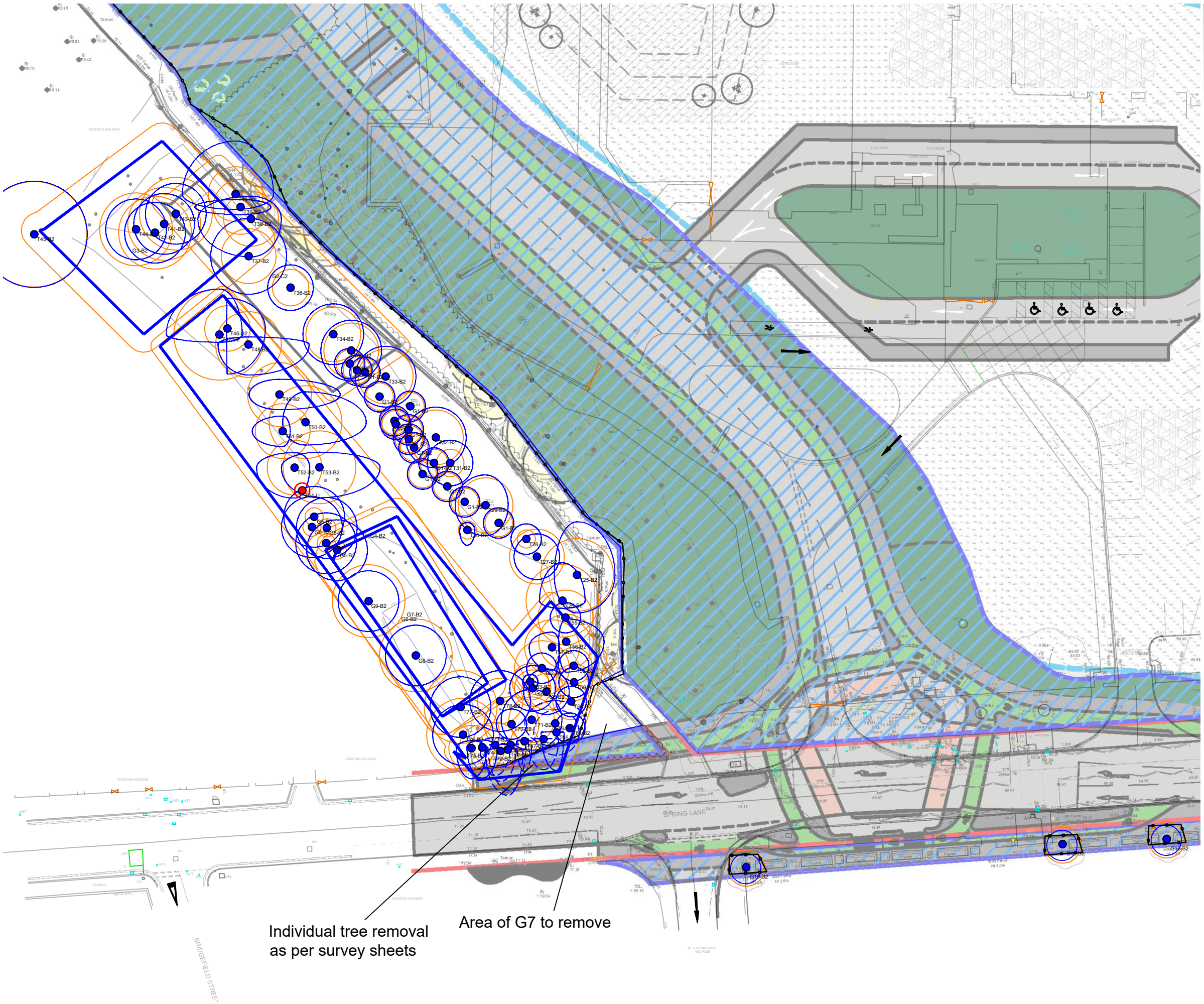
13.0 Amenity Value

The retention of significant arboricultural assets has been achieved.

14.0 Concluding statement

- 14.1 The proposed scheme was assessed in line with guidance provided in BS 5837:2012 *Trees in relation to design demolition and construction – Recommendations* with the aim to achieve a harmonious relationship between trees and structures that can be sustained in the long term.
- 14.2 It is my professional opinion as an arboriculturist that this has been achieved.

Appendix 1 Tree Protection Plan



(RETENTION VALUE A)

(RETENTION VALUE B)

(RETENTION VALUE C)

(RETENTION VALUE U)

Root Protection Areas (RPA) & Construction Exclusion Zones (CEZ)

Root Protection Areas (RPA's) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

CEZ (Protective barrier)

RPA

Canopy extent

CEZ

The CEZ's will require installation as shown on the TPP.

NOTES

This drawing shall not be reproduced in black and white.
This drawing is produced for Planning and Construction

Client:
Morgan Sindall

Project:
Cyclops

Detail:
TREE PROTECTIONS PLAN - Overview

Drawn By: SB Date: 13.12.2023 Scale: 1:500@A3

Drg No: TR-01 Revision: V1

Tree No.	latin name	Life Stage	Diameter(mm)	Height(m) / Crown Height (m)	North(m)	East(m)	South(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPR(m)	RPA(m)
T25	Betula pendula (Silver Birch)	EM	400	21(4)	7	5	5	3	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T26	Betula pendula (Silver Birch)	EM	400	21(4)	5	3	1	3	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T27	Betula pendula (Silver Birch)	EM	300	21(4)	3	3	3	3	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T28	Betula pendula (Silver Birch)	EM	100	16(4)	2	2	2	2	B2	20+		Unaffected. Install CEZ as required.	1.2	4.52
T29	Betula pendula (Silver Birch)	EM	300	18(4)	4	3	4	4	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T30	Prunus avium (Wild Cherry)	Y	100	7(2)	1	1	2	1	B2	20+		Unaffected. Install CEZ as required.	1.2	4.52
G1	Prunus avium (Wild Cherry)	Y	150	7(2)	2	2	2	2	B2	20+		Unaffected. Install CEZ as required.	1.8	10.18
T31	Betula pendula (Silver Birch)	Y	150	12(2)	3	3	3	3	B2	20+		Unaffected. Install CEZ as required.	1.8	10.18
T32	Betula pendula (Silver Birch)	Y	300	12(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T33	Betula pendula (Silver Birch)	Y	300	12(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T34	Betula pendula (Silver Birch)	Y	300	17(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T35	Betula pendula (Silver Birch)	Y	300	17(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T36	Betula pendula (Silver Birch)	Y	200	17(2)	3	3	3	3	B2	20+		Unaffected. Install CEZ as required.	2.4	18.1
G2	Prunus avium (Wild Cherry)	Y	100	8(1)	2	2	2	2	C2	20+		Unaffected. Install CEZ as required.	1.2	4.52
T37	Betula pendula (Silver Birch)	M	300	20(2)	5	5	5	5	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T38	Betula pendula (Silver Birch)	M	300	20(2)	3	4	5	7	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T39	Betula pendula (Silver Birch)	M	300	20(2)	1	4	1	6	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T40	Betula pendula (Silver Birch)	M	300	20(2)	7	5	2	7	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
G3	Betula pendula (Silver Birch)	M	200	18(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	2.4	18.1
T41	Betula pendula (Silver Birch)	M	400	18(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T42	Betula pendula (Silver Birch)	M	400	18(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T43	Betula pendula (Silver Birch)	M	400	18(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39

Tree No.	latin name	Life Stage	Diameter(mm)	Height(m) / Crown Height (m)	North(m)	East(m)	South(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPR(m)	RPA(m)
T44	Betula pendula (Silver Birch)	M	400	18(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T45	Salix caprea (Goat Willow)	M	#####	14(1)	7	7	7	7	B2	10+		Unaffected. Install CEZ as required.	6.95	151.77
G4	Fraxinus excelsior (Ash)	M	100	12(1)	3	3	3	3	B2	10+		Unaffected. Install CEZ as required.	1.2	4.52
T46	Acer platanoides (Norway Maple)	M	250	22(2)	4	5	6	0	B2	20+		Unaffected. Install CEZ as required.	3	28.28
T47	Prunus avium (Wild Cherry)	M	500	21(1)	6	3	1	7	B2	10+		Unaffected. Install CEZ as required.	6	113.11
T48	Acer platanoides (Norway Maple)	M	200,300	22(0)	1	8	4	4	B2	20+		Unaffected. Install CEZ as required.	4.33	58.91
T49	Acer platanoides (Norway Maple)	M	350	22(0)	2	8	2	4	B2	20+		Unaffected. Install CEZ as required.	4.2	55.42
T50	Acer platanoides (Norway Maple)	M	400	21(2)	4	8	3	3	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T51	Betula pendula (Silver Birch)	M	300	18(4)	2	1	2	4	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
T52	Betula pendula (Silver Birch)	M	300	18(4)	2	2	4	5	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
T53	Acer platanoides (Norway Maple)	M	400	21(2)	2	8	4	5	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T54	Acer platanoides (Norway Maple)	M	100	21(2)	1	1	1	1	U	<10		Unaffected. Install CEZ as required.	1.2	4.52
G5	Acer platanoides (Norway Maple)	M	100	21(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	1.2	4.52
T55	Prunus avium (Wild Cherry)	M	300	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
T56	Acer platanoides (Norway Maple)	M	300	21(1)	3	5	4	1	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
T57	Betula pendula (Silver Birch)	M	300	21(1)	2	1	3	3	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
T58	Betula pendula (Silver Birch)	M	200	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	2.4	18.1
T59	Betula pendula (Silver Birch)	M	200	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	2.4	18.1
T60	Betula pendula (Silver Birch)	M	200	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	2.4	18.1
T61	Betula pendula (Silver Birch)	M	200	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	2.4	18.1
T62	Betula pendula (Silver Birch)	M	300	21(1)	2	2	2	2	B2	10+		Unaffected. Install CEZ as required.	3.6	40.72
G6	Betula pendula (Silver Birch)	M	200	21(1)	3	3	3	3	B2	10+		Unaffected. Install CEZ as required.	2.4	18.1

Tree No.	latin name	Life Stage	Diameter(mm)	Height(m) / Crown Height (m)	North(m)	East(m)	South(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPR(m)	RPA(m)
T63	Betula pendula (Silver Birch)	EM	200	18(1)	1	1	1	1	B2	<10		Unaffected. Install CEZ as required.	2.4	18.1
T64	Prunus avium (Wild Cherry)	M	350	18(5)	3	4	3	4	B2	10+		Requires removal for access footway	4.2	55.42
T65	Fraxinus excelsior (Ash)	EM	250	17(2)	0	1	5	2	B2	20+		Requires removal for access footway	3	28.28
T66	Betula pendula (Silver Birch)	EM	250	18(5)	0	2	4	2	B2	10+		Requires removal for access footway	3	28.28
T67	Betula pendula (Silver Birch)	EM	150	18(5)	0	1	4	1	B2	10+		Requires removal for access footway	1.8	10.18
T68	Fraxinus excelsior (Ash)	M	300	16(3)	0	2	6	3	B2	20+		Requires removal for access footway	3.6	40.72
T69	Fraxinus excelsior (Ash)	M	300	16(3)	0	2	6	3	B2	20+		Requires removal for access footway	3.6	40.72
T70	Fraxinus excelsior (Ash)	M	300	16(3)	2	2	2	2	B2	20+		Unaffected. Install CEZ as required.	3.6	40.72
T71	Betula pendula (Silver Birch)	EM	250	19(7)	4	4	4	4	B2	20+		Requires removal for access footway	3	28.28
T72	Betula pendula (Silver Birch)	EM	250	19(7)	1	2	4	2	B2	20+		Requires removal for access footway	3	28.28
T73	Betula pendula (Silver Birch)	EM	250	19(7)	1	2	4	2	B2	20+		Unaffected. Install CEZ as required. Prune 1m overhang to 3.5m crown lift	3	28.28
T74	Betula pendula (Silver Birch)	EM	250	19(7)	1	2	4	2	B2	20+		Unaffected. Install CEZ as required. Prune 1m overhang to 3.5m crown lift	3	28.28
T75	Betula pendula (Silver Birch)	EM	250	19(7)	1	2	4	2	B2	20+		Unaffected. Install CEZ as required.	3	28.28
T76	Betula pendula (Silver Birch)	EM	400	19(7)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T77	Prunus avium (Wild Cherry)	EM	400	19(7)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
T78	Betula pendula (Silver Birch)	EM	250	14(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	3	28.28
G6	Betula pendula (Silver Birch)	EM	200	17(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	2.4	18.1
G7	Prunus avium (Wild Cherry)	EM	200	17(2)	4	4	4	4	B2	20+		Largely unaffected, partially removed. Install CEZ as required.	2.4	18.1
G8	Betula pendula (Silver Birch)	EM	400	17(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39

Tree No.	latin name	Life Stage	Diameter(mm)	Height(m) / Crown Height (m)	North(m)	East(m)	South(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPR(m)	RPA(m)
G9	Fraxinus excelsior (Ash)	EM	400	17(2)	4	4	4	4	B2	20+		Unaffected. Install CEZ as required.	4.8	72.39
G10	Tilia x europaea	EM	200	7	2	2	2	2	B2	20+		Unaffected. Install CEZ as required.	2.4	18.1