



Greater Cambridge Partnership

CAMBOURNE TO CAMBRIDGE

Environmental Statement

Appendix TR5.16 - Arboricultural Technical Note





Greater Cambridge Partnership

Cambourne to Cambridge

Arboricultural Report

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1 Introduction

1.1 Purpose

- 1.1.1. This Technical Note summarises preliminary observations from desk study and field survey of selected arboricultural features within the red line boundary of the proposed development of Cambourne to Cambridge busway.
- 1.1.2. The surveys were commissioned by Greater Cambridge Partnership to provide information on the risks from the proposed development to trees identified as significant due to their size or where ecological and landscape value had been identified by complementary disciplines. Planning constraints associated with tree preservation orders and conservation areas is outlined.

1.2 Scope

- 1.2.1. Trees were scoped into the survey protocol by the following methods:
 - Desk study of Tree Preservation Orders;
 - Ecology discipline highlighting apple trees at Coton Orchard;
 - Boundary poplar trees at land associated with Coton Orchard;
 - Trees in the vicinity of the rifle range, University Rugby Ground; and
 - LiDAR assessment of trees more than 14m high and with crown area greater than 40m².
- 1.2.2. The scope identified these trees should be subject to arboricultural field inspection.

2 Methodology

- 2.1.1. The methodology for field survey of trees followed the recommendations of BS5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*' (British Standards Institute, 2012), referred to in this note as BS5837.
- 2.1.2. The NPPF defines ancient and veteran trees as: "A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage." Recognition of the veteran features of trees followed guidance from the Ancient Tree Forum. The guidance recognises multiple veteran characteristics of trees but identifies three principal qualifying criteria:
- A low, fat, squat shape because the crown has retrenched through age;
 - A wide trunk compared with others of the same species; and
 - Hollowing of the trunk.

3 Tree Preservation Orders and Conservation Areas

- 3.1.1. The Local Planning Authority (LPA) may consider imposing a Tree Preservation Order (TPO) at any time. Once the order is applied to a tree it makes it an offence, without the LPA's permission, to:
- cut it down;
 - top or lop the crown;
 - uproot it; or
 - wilfully damage or destroy it.
- 3.1.2. The purpose of the TPO is to protect trees that make a significant impact on their local surroundings. This is particularly important where trees are in immediate danger of being felled or heavily pruned.
- 3.1.3. All types of trees can be covered by a TPO (including hedgerow trees). The TPO can cover anything from a single tree to woodlands.
- 3.1.4. TPO are in place for a copper beech and a pair of black pine at the rear of gardens of properties on Herschel Road, Cambridge, close to the route of the busway and non-motorised user pathway (NMU), near to the unnamed track adjacent to the University Rugby Ground. Additional TPO are also in place in Coton, Hardwick and Upper Cambourne and Dry Drayton, including roadside trees along Scotland Road. These further TPO trees and tree groups are not currently considered vulnerable to the proposed development.
- 3.1.5. The LPA is under a duty to preserve or enhance the character or appearance of Conservation Areas. A key part of the character and appearance may be the trees. Anyone proposing to carry out works to a tree in a Conservation Area must give at least 6 weeks' notice to the LPA. Exceptions to this requirement apply when the tree is dead, dying or has become dangerous (but should be reported to the authority). It is a criminal offence to carry out works to a tree where notice was required and not served on the LPA.
- 3.1.6. Areas of Coton and Hardwick and west Cambridge (abutting the proposed development) are conservation areas.

4 Apple Trees at Coton Orchard

- 4.1.1. Coton Orchard combines areas of orchard and scrub woodland. The area is bounded by hedgerows of mixed broadleaf species to some of the boundaries and contains additional hedges internally creating discrete parcels within the orchard. The hedgerows could be ecological corridors but not arboriculturally important. A line of poplar trees forming the eastern boundary is considered separately below.
- 4.1.2. The orchard areas are principally of trees on dwarfing rootstocks planted in a regular grid pattern. Whilst the orchard is not currently managed commercially the principal areas of dwarf trees complement a small number of mature orchard trees and is similarly identified as priority habitat traditional orchard in Defra's MAGIC map. These trees could be brought into production. The young apple trees are typically below the qualifying size threshold for BS5837.
- 4.1.3. One area of the orchard contains old trees, possibly dating from the foundation of the orchard (or soon after) a century ago (see **Annex A, Figure TR5-16-A-1**). The importance of traditional orchard as an ecological resource is because the open-grown trees provide a matrix of arboricultural and grassland habitats.
- 4.1.4. There are 11 live specimens of old apple tree. An elder is growing from the stump of what was once a twelfth tree (referenced as T1 but not qualifying for classification under BS5837).
- 4.1.5. Apple trees of approximately 100 years could reasonably be considered veteran because their lifespan is beyond that of most specimens of the species. However, the apple trees have received regular crown pruning which has rejuvenated branch growth and the crowns have not retrenched. Moreover, pruning has limited the development of a wide trunk (relative to untended old specimens of the species). Hollowing of the trunks is very extensive. Some exhibit brackets of decay fungi. The arboriculturist concluded that the trees do not possess sufficient of the key criteria of veteran trees, but this is not to say that they do not provide an important ecological resource as deadwood habitat and the combination of open grown trees and ground flora provides a priority habitat.
- 4.1.6. The trees have an estimated remaining contribution of at least 20 years. Typically, BS5837 requires that trees have an anticipated 40+ years of expected life to be accorded high quality/category A status. However, there is scope for A categorisation with sub-category 3, reflecting high cultural importance, to be applied in this context. Moreover, the arboricultural categorisation does not capture the full ecological consideration.



Reference No.	Species	Height (m)	Stem Diameter (mm)	Number of stems	Effective diameter (mm)	Crown Spread (N, E, S, W) (m)				Lowest Crown Height (m)	Lowest Branch Height (m)	Age Class	Physiological Condition	Structural Condition	Estimated Remaining Contribution	Category	RPA Radius (m)
T1	Apple	n/a	n/a										stump		U	n/a	
T2	Apple	7	370,300,270	3	550	5	6	5	5	1	0.5	Over-mature	Fair	Fair	20+	A3	6.6
T3	Apple	7	400, 400, 300	3	640	6	6	6	6	1	1	Over-mature	Fair	Fair	20+	A3	7.7
T4	Apple	8	5@300	5	670	6	6	6	5	1	1	Over-mature	Fair	Fair	20+	A3	8.1
T5	Apple	9	380, 250,250,220,220	5	610	6	5	6	5	1	1	Over-mature	Fair	Fair	20+	A3	7.4
T6	Apple	6	400, 220, 200	3	500	4	4	4	4	1	1	Over-mature	Fair	Fair	20+	A3	6.0
T7	Apple	6	280, 280, 250, 250	4	530	5	5	5	2	1	0.5	Over-mature	Fair	Fair	20+	A3	6.4
T8	Apple	8	6@250	6	610	6	5	6	5	1	1	Over-mature	Fair	Fair	20+	A3	7.4
T9	Apple	8	280, 280, 250, 250	4	530	4	4	4	2	1	1	Over-mature	Fair	Fair	20+	A3	6.4
T10	Apple	6	500, 300, 200	3	620	6	6	5	5	1	1	Over-mature	Fair	Fair	20+	A3	7.4
T11	Apple	6	4@200	4	400	6	4	6	5	1	0.5	Over-mature	Fair	Fair	20+	A3	4.8
T12	Apple	4	400, 200	2	450	4	2	3	4	1	0.5	Over-mature	Fair	Fair	20+	A3	5.4

5 Poplar Trees at Coton Orchard

- 5.1.1. The fruit trees of Coton Orchard give way to low quality scrub woodland in the eastern parcel of the site (**see Annex A, Figure TR5-16-A-2**). On the eastern boundary of the land parcel is a line of poplar trees at very close spacing. The stems are typically between 1 and 3m separation and grow along the top of a ditch. The group has an understorey of hawthorn.
- 5.1.2. A small number of the poplar trees have been blown over. The closely spaced trees and the ditch have significantly restricted rooting and incipient tree instability is anticipated. The trees are tall to 26m and have stem diameters of up to 900mm (with most stems in the range 600-700mm). Collectively the trees form a moderate quality/B category group but individually the trees are of low quality/C category.
- 5.1.3. Removal of a section of the group or selective thinning of the poplar tree group will increase instability of retained trees, as there is currently some mutual physical support. Topple distance in excess of one tree length to a routeway should be maintained.
- 5.1.4. Reduction in topple distance, to allow for greater tree retention, may be possible through pollarding, the act of tree height reduction from which branch regeneration and regrowth follows. Poplar responds well to this recognised management technique, but the process requires repeated actions on a cycle of 5-10 years and left unattended, after pollarding, increases the potential for branch drop.

Reference No.	Species	Height (m)	Stem Diameter (mm)	Number of stems	Crown Spread (m)	Lowest Crown Height (m)	Lowest Branch Height (m)	Age Class	Physiological Condition	Structural Condition	Estimated Remaining Contribution	Category	RPA Radius (m)
G1	Poplar	26	900	50+	5	8	8	Mature	Fair	Fair	20+	B	10.8
G1	Hawthorn	4	200	20+	2	1	1	Mature	Fair	Fair	20+	B	2.4

6 Trees at the Rifle Range, University Rugby Ground

- 6.1.1. Third party trees in the gardens of properties on Herschel Road and close to a roadway beside the University Rugby Ground present an arboricultural and planning constraint. The trees have been inspected from public land and sizes are estimated. Three trees are subject to TPO. Other trees not subject to TPO and have moderate to low quality classification in BS5837. The trees provide valuable screening.
- 6.1.2. The large trees have a root protection area extending significantly into the roadway. Excavation within the RPA for busway or NMU pathway must be minimised and may require further non-invasive investigation of root distribution using root radar equipment. A no-dig construction methodology is advocated using a cellular confinement system filled with no-fines angular material and bound with porous resin.

Reference No.	Species	Height (m)	Stem Diameter (mm)	Number of stems	Crown Spread (m)	Lowest Crown Height (m)	Lowest Branch Height (m)	Age Class	Physiological Condition	Structural Condition	Estimated Remaining Contribution	Category	RPA Radius (m)
T101	Black pine	21	800	1	5	1	8	Mature	Good	Good	40+	A	9.6
T102	Black pine	21	800	1	5	1	8	Mature	Good	Good	40+	A	9.6
T103	Copper beech	24	1100	1	10	4	4	Mature	Good	Good	40+	A	13.2

7 Other Large Trees

- 7.1.1. A LiDAR analysis was undertaken to determine the heights and spreads of trees within the boundary of the proposed development (See **Annex A, Figure TR5-16-A-3** and **Figure TR5-16-A-4**). This has identified a limited number of trees on Scotland Road and in suburban settings and third-party garden land. It is not currently anticipated that any of these trees will be impacted by the proposed development.

Annex A

Site Images

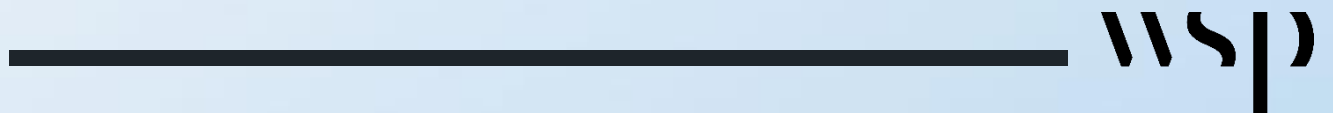


Figure TR5-16-A-1 - Coton Orchard, apple trees



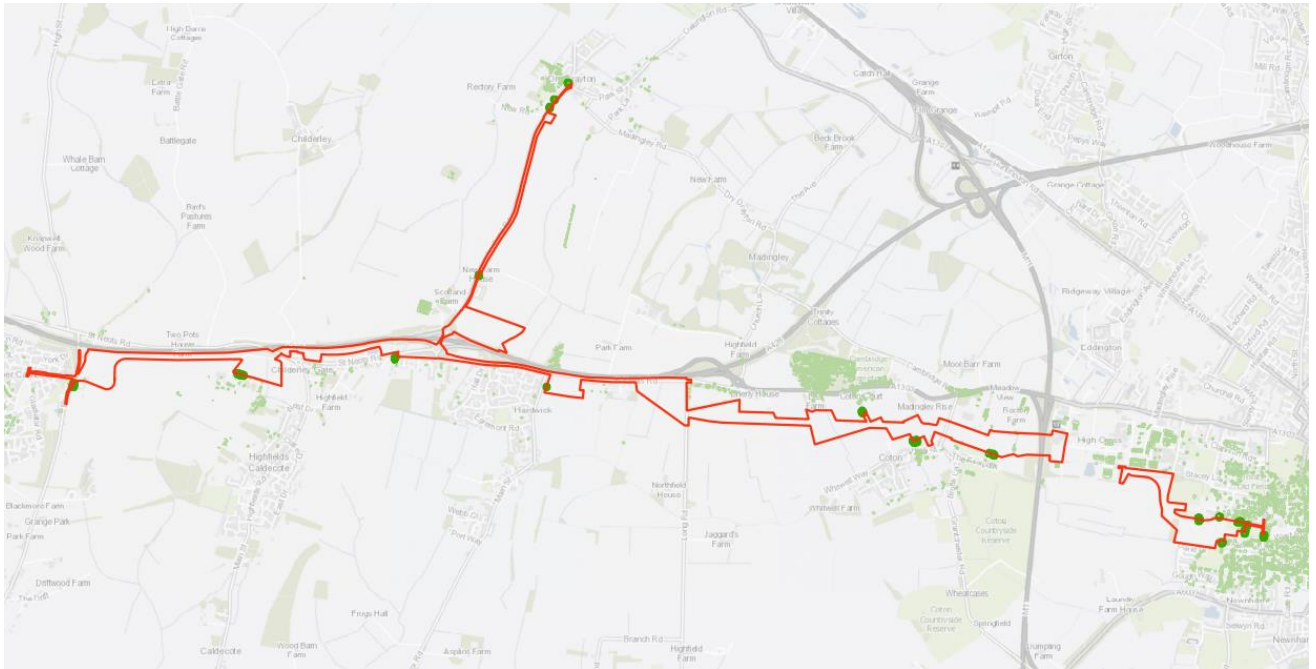
Figure TR5-16-A-2 - Poplar trees at Coton Orchard



Figure TR5-16-A-3 - Scheme-wide LiDAR vegetation capture



Figure TR5-16-A-4 - LiDAR detection of large trees (over 14m height and crown area greater than 40m²)





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