



3 Church Street,
Waltham Abbey,
Essex, EN9 1DX

**BS 5837:2012 Tree Survey & Arboricultural Impact of
Proposed Extension**

Address: 50 Halford Road, Richmond

Site Surveyed by Peter Holloway

**Report prepared by
Peter Holloway CEnv, BSc. (Hons), FArborA,**

Date 16th March 2021

Report Prepared for Alex & Grace Borrelli

Table of Contents

1. INTRODUCTION..... 3

2. DOCUMENTS..... 3

3. BACKGROUND..... 3

4. TREE SURVEY..... 4

5. ARBORICULTURAL IMPACT APPRAISAL..... 4

6. MITIGATION..... 5

7. APPENDIX 1 STANDARD METHODOLOGY..... 6

8. APPENDIX 2 TABLE 1 'TREE DATA'..... 9

9. APPENDIX 3 EXISTING SITE PLAN WITH TREE CONSTRAINTS..... 11

10. APPENDIX 4 PROPOSED SITE PLAN WITH TREE CONSTRAINTS 13

1. Introduction

1.1 I am instructed by Ms Grace Borrelli. My brief is:

- To carry out a Tree Survey in accordance with the British Standard 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' April 2012.
- To produce an **Arboricultural Implications Assessment (AIA)** for the proposed rear extension.

2. Documents

2.1 I was provided with the following documents:

- i. Site Location Plan
- ii. Existing Site Plans, Sections, rear elevation, and side elevation.
- iii. Proposed Site Plans, Sections, rear elevation, and side elevation.

3. Background

3.1 The proposal is to construct a rear extension and make alterations to garden levels.

3.2 This report includes:

- i. Standard BS5837 Methodology (Appendix 1)
- ii. Tree Survey Data (Appendix 2)
- iii. Existing Site Plan with Tree Constraints (Appendix 3)
- iv. Proposed Site Plan with Tree Constraints (Appendix 4)

3.3 The trees (and shrubs) were surveyed from ground level using a visual tree assessment method. No detailed tree examinations were undertaken during the survey.

3.4 I looked at the site on Thursday 9th March 2021 and surveyed the trees nearest the proposed extension and any that might be affected by working space.

3.5 The site is within a conservation area. I am not aware if any of the trees are included in Tree Preservation Orders. The status of tree protection should be checked before carrying out any tree work and the appropriate procedure followed.

- 3.6 The Wildlife and Countryside Act 1981(as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 provide protection for many species of animal that live in trees. I did not see any protected species.
- 3.7 The Geology at this postcode (as indicated at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>) is London Clay. Soils and surface geology with clay can be affected by compaction which affects the porosity of the soil to air and water which can affect tree root growth and therefore tree health.

4. Tree Survey

- 4.1 The methodology for the tree survey is described in Appendix 1.
- 4.2 I recorded ten trees and shrubs in the rear garden and on adjacent land. The tree details are included in Table 1, Appendix 2 and plotted on the proposed site plan in Appendix 3 and the Proposed Site Plan in Appendix 4.
- 4.3 I did not observe any significant defects that require imminent tree work for tree safety reasons.

5. Arboricultural Impact Appraisal

- 5.1 I have adjusted the shape but not the size of the RPAs of some of these trees because the 3m high boundary wall between the garden and the cemetery and the retaining wall around the Pyracantha shrub (S01).
- 5.2 The position of the trees and shrubs in relation to the proposed extension and garden level changes can be seen in the plan in Appendix 4.
- 5.3 The proposed extension does not affect the adjusted RPAs of any existing trees. However, the change in garden levels affect the Pyracantha shrub (S01) and the Elder (S02). The Elder S02 will need to be removed. The Pyracantha (S01) is growing offsite, adjacent to the boundary and will not be able to be retained. This Pyracantha is not healthy and is not a reasonable constraint on construction, but you will need to discuss the impact of the proposal with the owner to either remove it beforehand or warn them that works to remove overhanging foliage and the roots crossing the boundary will probably lead to the tree's death and/or its instability.

- 5.3 The Holly Shrub (S03) does not need to be removed for construction but it will obstruct the top of the proposed steps to the upper garden level so it will need to be removed.
- 5.4 If the remaining trees in the rear garden are retained and the rear garden is used as working space then tree protection is likely to be a requirement of any planning permission. The three Ash trees growing adjacent to the rear boundary wall are young trees but when they are mature this species will be much too large for such a small garden (8x6m currently) and the rear boundary wall will be damaged by them. I believe this wall is a Grade II listed building. It would be preferable to remove these trees before they do any damage and replace them with one small tree species in the garden. A species like *Amelanchier x grandiflora* (Snowy Mespilus) would be appropriate. Ash trees T04 and T06 are larger than 75mm stem diameter so you will need to give the council six weeks' notice of any intention to remove them or apply for permission if they are subject to a Tree Preservation Order.

6. Mitigation

- 6.1 The loss of shrubs can be replaced in new garden landscaping.
- 6.2 Any retained trees in the garden will need to be protected from indirect damage by construction work using fencing and ground protection. Ground protection would be useful to protect the soil from compaction or contamination during construction for future landscaping whether trees are retained or not.

7. Appendix 1 Standard Methodology

A.1 Survey

A.1.1 All my observations were from ground level without detailed investigations and I measured tree stem diameters where possible and estimated height and crown spread by pacing and using a clinometer. I do not normally have access to trees outside the boundaries and so my observations and comments on these trees are based on the visual assessment made from within the site or the surrounding public highway.

A.1.2 I surveyed all trees objectively without reference to any design proposals supplied or suggested by the client. The trees were located using the topographical survey where provided. If the topographical plan did not include all relevant trees, they would be added in their approximate positions.

A.1.3 As suggested in the BS 5837:2012 all single stem trees with a stem diameter of less than 75 mm at 1.5 m above ground level can be excluded from the survey as they are not deemed to be of significant size to be included. Multi stemmed trees were measured in accordance with the standard.

A.1.4 Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades, along with any conclusions or tree management recommendations can only remain valid for a period of 12 months.

A.1.5 Where possible trees were assessed as individual specimens, however, where there were trees that formed distinctive groups of the same species within the landscape they can be assessed and graded as groups.

A.1.6 Trees on or adjacent to development sites are a material consideration that may have a significant impact on the future development and use of the site.

A.2 Use of survey data.

A.2.1 The British Standard 5837:2012 provides guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees with structures.

A.2.2 The tree survey with minimum requirements of BS5837 is enclosed in the appendices of this report.

- A.2.3 The British Standard 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' provides guidance and specifies measures to be adopted to avoid or minimise damage to trees retained on or in proximity to construction sites. One of the key recommendations is that a Root Protection Area (RPA) should be established around each retained tree. The RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter measured at 1.5 metres above ground level for a single stem tree. To prevent disturbance or contamination of the RPA they are usually enclosed by robust fencing.
- A.2.4 Circular Root Protection Areas (RPAs) can be adjusted by an arboriculturist by considering obstructions for root growth, including building foundations, retaining walls, metalled roads, topography, soil type and tolerance of individual trees.
- A.2.5 The British Standard recommends that trees within categories A-C (where A is highest quality) are a material consideration in the development process. Category U trees are trees that will not be expected to exist for long enough to justify their consideration in the planning process. The tree categories are used with the number 1, 2, or 3, which is shown in Table 1. These signify whether the justification for the category was made based on mainly arboricultural values, mainly landscape values or mainly cultural/conservation values, respectively. The tree categories are shown on the tree constraints plan by colour coding. Category A trees are green, category B trees are blue, category C are grey and category U are dark red.
- A.2.6 It is important to recognise that tree roots are particularly vulnerable during any adjacent construction operations. Tree roots grow where conditions are most favourable, this tends to be near the soil surface, for this reason most tree roots grow in the upper 600mm of the soil. This means that operations during construction such as shallow excavations, soil compaction by heavy plant or machinery or contamination by substances such as cement, diesel, or other chemicals, even water in excess, can be damaging to the root system.
- A.2.7 The presence of surrounding walls, roads and retaining walls can affect the root distribution of trees within and around the site. Normally when a Root Protection Area is adjusted its shape is changed but the total area is maintained.

- A.2.8 Approved tree work should be carried out in accordance with BS 3998:2010 by suitably qualified and experienced professional tree surgeons. Under no circumstances shall site personnel undertake any tree pruning operations. All tree works should also take into consideration The Wildlife and Countryside Act 1981 (as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 protected species of flora and fauna.
- A.2.9 If the site is within a conservation area then the local authority will need to be notified of your intention to prune the tree which they can prevent by making a Tree reservation Order. Some forms of tree work are exempt from this requirement and tree works directly required to accommodate a development that has planning permission would be exempt. However, to avoid error I would always recommend notifying the local authority to avoid costly mistakes.
- A.2.10 If individual trees are protected by Tree Preservation Orders then written consent is required for tree pruning or tree removal except for a few exemptions and if the work is directly required to accommodate a development which has planning permission. As above, I would always recommend applying for consent rather than assuming that works are exempt from requiring consent.

8. Appendix 2 Table 1 'Tree data'

Tree number: The number used in the table 1 corresponds to numbers on the plans.

Species: The Common and Botanical names of each tree.

Height and **branch spread** are estimated and listed in metres.

Stem diameter is usually measured at 1.5m above ground level (a.g.l.). It is listed in the table in mm.

Height of crown above ground level (a.g.l.):

This gives an indication of whether the crown extends to the ground or has low hanging branches. The height of the lowest branch and its direction will also be recorded.

Direction of Lowest Branch:

The direction is given as a compass direction however where all branches originate at the same point (like a pollarded tree) the letter 'CB' may be used, where the lower branches originate at the same height 'AR' for all 'round may be used.

Age class: This refers to the age of the individual tree relating to the average life expectancy of each species in a similar environment.

Physiological condition:

The general state of health of the tree, good (G), fair (F), poor (P) or dead (D).

Structural condition:

A description of any defects/habits/any previous management of note.

Remaining contribution in years:

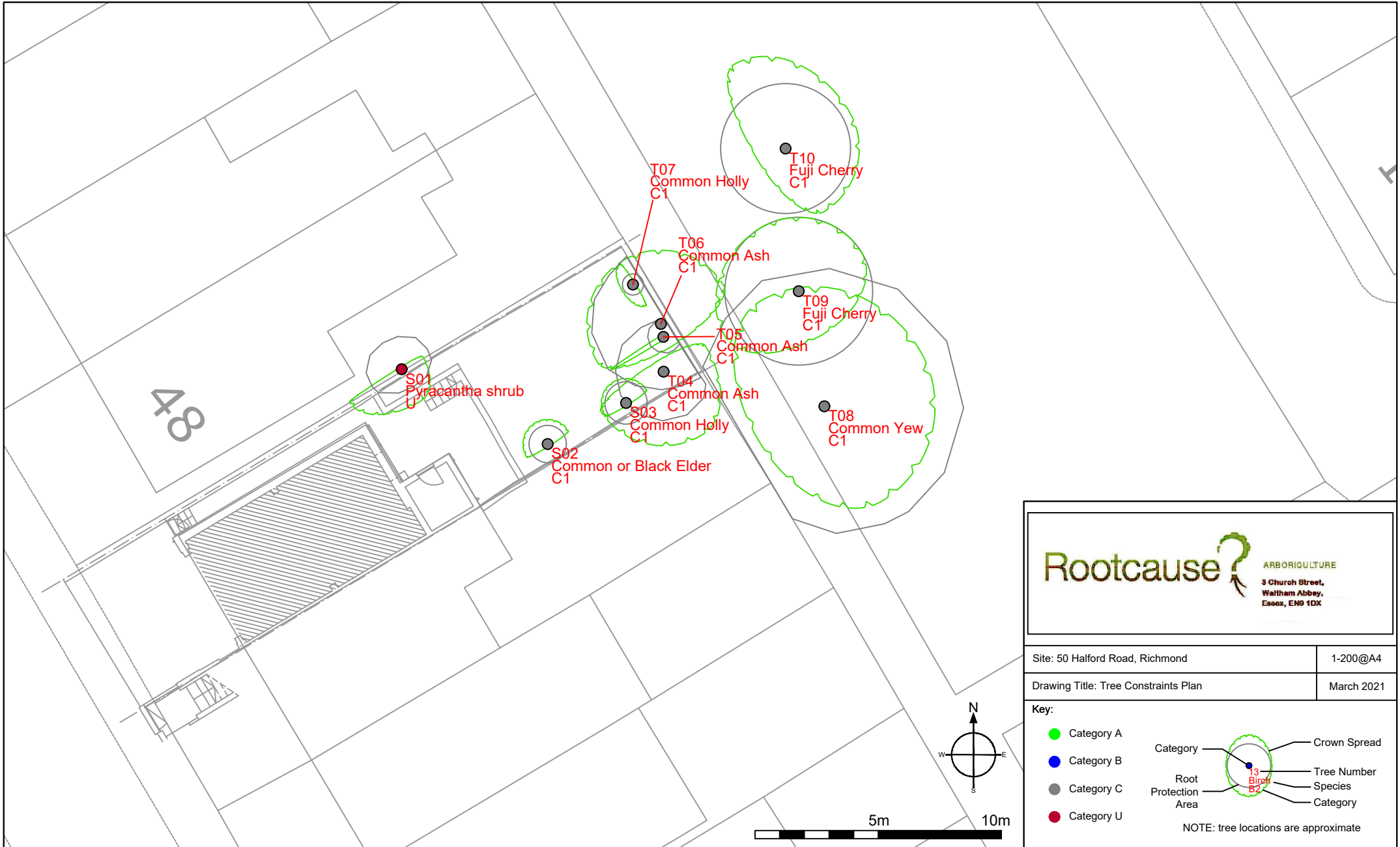
This has been estimated by taking the age of the tree away from an estimate of the total number of years the tree may live for in current site conditions, it has listed in bands as recommended in BS5837:2012.

Retention category:

Each tree is placed in a category using the guidance in BS 5837:2012.

Table 1		50 Halford Road, Richmond															9th March 2021		
Tree No.	Species		Height (m)	Stem Diameter (mm)	No. of Stems	Crown constraints			North (m)	South (m)	East (m)	West (m)	Age class	Summary of Physiological condition	Observations	Root Protection		Remaining contribution years	Tree Category
	Common	Botanical				Crown height m	Lowest branch m	Direction lowest branch								Radius (m)	Area (m2)		
S01	Pyracantha shrub	Pyracantha sp.	3.5	100	1	2.5	2	S	0	1.5	1	2.5	Mature	Poor	Offsite. Dieback 40-50%.	1.20	5	<10 yrs	U
S02	Common or Black Elder	Sambucus nigra	4	63	10	0	Coppice	0	1	1	1	0	Young	Fair	Shrubby multistemmed form	0.76	2	10 to 20 yrs	C1
S03	Common Holly	Ilex aquifolium	4	72	2	0	MS	NA	1	1	1	0	Young	Good	Self sown by fence. It will damage fence.	0.87	2	10 to 20 yrs	C1
T04	Common Ash	Fraxinus excelsior	10	151	3	3	3	S	0.5	3	2	3	Young	Fair	Tree has two stems close together. Will develop an appressed fork. Not appropriate species for small garden. 0.5m from wall.	1.82	10	20 to 40 yrs	C1
T05	Common Ash	Fraxinus excelsior	5	50	1	2.5	None	NA	0	0	0	2.5	Young	Poor	Tree suppressed. Close to wall. Not suitable species for a small garden.	0.60	1	20 to 40 yrs	C1
T06	Common Ash	Fraxinus excelsior	10	170	1	1.5	Trifurcate	1.8	3	1	3	3	Young	Fair	Tree close to wall. Not suitable species for small garden. Longer term threat to wall.	2.04	13	20 to 40 yrs	C1
T07	Common Holly	Ilex aquifolium	4	36	2	2	0	0	1	1	0.5	0	Young	Fair	Self sown Holly close to wall. Forks at 1.2m	0.43	1	20 to 40 yrs	C1
T08	Common Yew	Taxus baccata	10	440	1	2	2	CB	5	4.5	4.5	3	Mature	Fair	Offsite. Scattered deadwood. Lifted over public path.	5.28	88	20 to 40 yrs	C1
T09	Fuji Cherry	Prunus incisa	9	250	1	2.4	2	CB	3	2	3	3.5	Mature	Fair	Offsite. Stubs and tear out wound. Surface roots.	3.00	28	20 to 40 yrs	C1
T10	Fuji Cherry	Prunus incisa	5	220	1	2	2	CB	4	3	3	1.2	Mature	Fair	Offsite. Stubs and minor deadwood.	2.64	22	20 to 40 yrs	C1

9. Appendix 3 Existing Site Plan with Tree Constraints



Rootcause? ARBORICULTURE
 3 Church Street,
 Waltham Abbey,
 Essex, EN9 1DX

Site: 50 Halford Road, Richmond	1-200@A4
Drawing Title: Tree Constraints Plan	March 2021

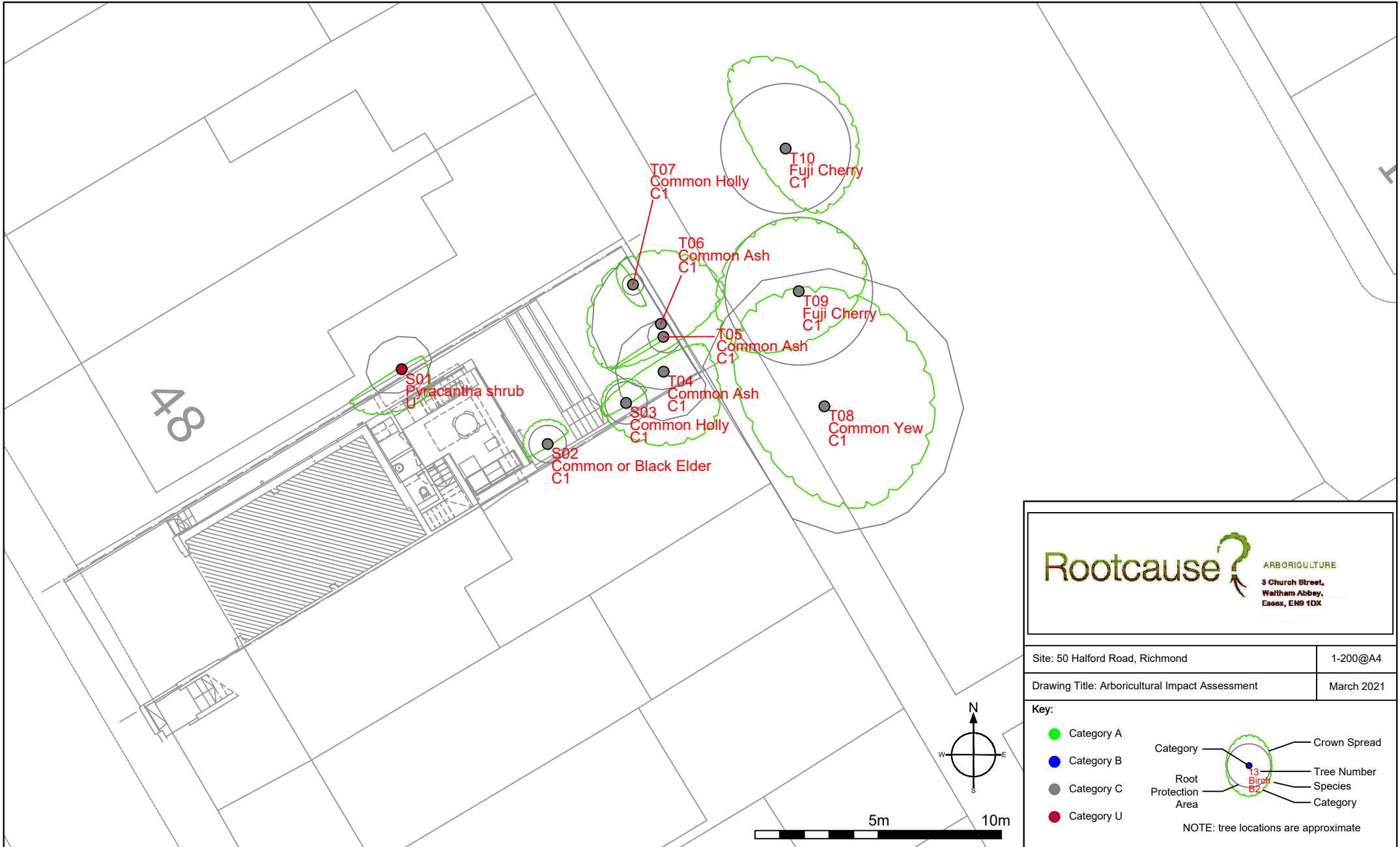
Key:

- Category A
- Category B
- Category C
- Category U

Category ——— Crown Spread
 Root Protection Area ——— Tree Number
 ——— Species
 ——— Category

NOTE: tree locations are approximate

10. Appendix 4 Proposed Site Plan with Tree Constraints



Rootcause? ARBORICULTURE
 3 Church Street,
 Waltham Abbey,
 Essex, EN9 1DX

Site: 50 Halford Road, Richmond	1-200@A4
Drawing Title: Arboricultural Impact Assessment	March 2021

Key:

- Category A
- Category B
- Category C
- Category U

Category ——— Crown Spread
 Root Protection Area ——— Tree Number
 Species
 Category

NOTE: tree locations are approximate