

Sylva Consultancy
expert arboricultural advice

Arboricultural Report

St Mary's University
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Twickenham
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May 2020

Ref: 20062

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Issued: 22nd May 2020



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1. INTRODUCTION

1.1 Instructions

- 1.1.1 Instructions have been received to carry out an Arboricultural Implication Assessment on the likely impact and effect with regard to the proposal to construct a new link and side extension, with landscaping works on land at St Mary's University, Twickenham (Appendix 1).
- 1.1.2 This appraisal assesses the impact of the proposal in relation to trees and discusses mitigation measures that may have to be adopted.

1.2. Arboricultural Survey

- 1.2.1 During May 2020, a tree survey was carried out in accordance with British Standard 5837:2012 'Trees in relation to Design, Demolition and Construction- Recommendations' and good arboricultural practice. This is a basic data collection exercise and a record of the trees condition at the time of surveying. The tree survey data can be viewed at Appendix 2, root protection area data at Appendix 3 with the tree constraints plan listed at Appendix 4.
- 1.2.2 A desk top study of information posted on London Borough of Richmond upon Thames website details that the site is not located within a Conservation Area. No information is currently available on the website to determine whether any of the trees are subject to a Tree Preservation Order (TPO). It is recommended that the London Borough of Richmond upon Thames to confirm the presence of any TPO's.

1.3 Site Description

- 1.3.1 The area surveyed is located on the eastern side of the main campus area and adjacent to the athletics track. Only trees considered within influencing distance of the proposal's have been recorded for the purpose of this report.

1.4 Proposed Development

- 1.4.1 It is proposed to construct a new link between the existing library building and Dolce Vita Café, with the construction of a new side extension to replace an existing portacabin. In addition, an existing internal access road will be realigned with landscaping works also occurring. The purpose of this report to assist with the design process.
- 1.4.2 Please note all tree numbers referred to in this document relate to the tree numbers annotated on the arboricultural implication assessment plan.

2. ARBORICULTURAL SURVEY

2.1 A total of 14 trees and 1 hedge have been recorded within this assessment. The tree quality is assessed as follows:

U: Trees that are considered to be of such condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboriculture management. However, if category 'U' trees are placed in an inaccessible location such that concerns over public safety are reduced to an acceptable level, it may be preferable or possible to defer this recommendation.

A: Trees of the highest quality and value and are considered to be of such a condition as to be able to make a substantial contribution (e.g. 40 years +).

B: Trees of moderate to high value and are considered to be of such a condition as to be able to make a significant contribution (e.g. 20 years +).

C: Trees of low quality with an estimated life expectancy of at least 10 years. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. Young trees with a stem diameter of less than 150mm should be considered for relocation or replacement through mitigation (e.g. 10 years).

Category A, B & C trees are further divided into sub-categories. These sub-categories carry equal weight and are selected for either arboricultural values, landscape values or cultural values, including conservation. Within the British Standard 5837:2012 it is recommended to record hedge and shrub masses, however in the context of the standard it is not necessary to assess the quality of these or to provide a category classification.

The numbers of trees falling under each classification within the arboricultural survey are as follows:

U: 0 trees

A: 0 trees

B: 6 trees

C: 9 trees & 1 hedge

3. PRINCIPLE ARBORICULTURAL IMPLICATIONS

3.1 Introduction

- 3.1.1 Consideration is given to the significance of the trees identified in the arboricultural tree survey, the constraints that they are likely to pose to any development that may occur, post development implications (if any) and work requirements to trees for reasons of sound arboricultural management in order to facilitate the development (BS5837:2012 Section 5.4).
- 3.1.2 This appraisal assesses the impact of the potential to re-develop the site in relation to the trees and discusses mitigation measures that may have to be adopted. The following documents have been provided by the Client:
- Site Location Plan
 - Proposed Site Plan

3.2 Trees

- 3.2.1 The trees surveyed are growing predominantly within an existing soft landscape area that is located between existing University buildings and the athletics track. It has been noted that the majority of the tree stock is young and has been recently planted.
- 3.2.2 The Wildlife & Countryside Act 1981, as amended by the Countryside Rights of Way Act 2000, provides statutory protection to birds, bats and other species that inhabit trees. These have the potential to pose additional constraints on the use and timings of works that may occur to trees located at the site. These issues are beyond my expertise and it is recommended that appropriate advice is sought prior to the implementation of any works considered within this report.

3.3 Overview

- 3.3.1 The most noteworthy trees within influencing distance of the proposals are the category 'B' trees. As such the report recommends that due consideration to retain these trees in the event of any re-development is given.
- 3.3.2 The appended arboricultural implications plan (Appendix 5) illustrates the proposals in relation to the tree stock. In addition to pre-development concerns, post development concerns such as debris and concerns of the trees proximity and juxtaposition to the proposal have also been considered during the design process.
- 3.3.3 An assessment of the design on the tree stock reveal that three category 'C' trees require removal to implement the proposal. In addition, 1 category 'C' tree is proposed to be transplanted to accommodate the realignment of the existing internal road.
- 3.3.4 The scheme has undergone a careful design process to ensure an efficient use of the site, whilst safeguarding the continued contribution to the greening of the immediate landscape. On the bases of the appraisal it is considered that the arboricultural impact of the scheme on the tree stock will not result in an adverse impact on the character and appearance of the site or wider landscape.

3.4 Impact of the proposal on the tree stock

Overview

3.4.1 Whilst trees in categories 'A', 'B' and 'C' are all a material consideration in the development process, the retention of category 'C' trees, being of low quality or of only limited or short-term potential, will not normally be considered necessary where they impose a significant constraint on development. Furthermore, BS 5837:2012 makes it clear that young trees, even those of good form and vitality, which have the potential to develop into quality specimens when mature "*need not necessarily be a significant constraint on the site's potential*".

3.5 Proposed New Link & Extension Works

3.5.1 In order to construct the new link between the existing library and Dolce Vita Café it is proposed to remove 1 category 'C' tree (T10, Chanticleer Pear). For the proposed extension, a further 2 recently planted category 'C' trees (T13 & T15 Mountain Hawthorn) will also be removed.

3.5.2 Category 'C' trees are assessed as being either of low quality, limited merit, low landscape benefits, no material cultural or conservation value, or only limited or short-term potential; or young trees with trunk diameter below 150mm; or a combination of these.

3.5.3 A total of 6 category 'B' trees have been recorded within the arboricultural survey. It is acknowledged that to implement the realignment of the existing access a marginal encroachment into tree T8, Purple Leaf Plum root protection area (RPA) will occur. Due to the considered minimal encroachment it is concluded that the tree will tolerate the encroachment and as such this will not be detrimental to the long-term ability to retain this tree.

3.5.4 Tree T6, a newly planted Mountain Hawthorn falls within the road realignment works. Given the young age of this tree it is proposed to transplant this tree to accommodate the works.

3.6 Proposed Landscaping

3.6.1 The creation of a new soft landscape square is proposed between the Student Services building and Student Union building. Existing hard landscaping will be removed and replaced with soft landscaped areas. The removal of the existing hard surfaces will improve the current growing conditions that tree T15, Tree of Heaven is growing in. Any works to remove hard surfaces within the root protection area of this tree must be carried out by hand to avoid damage to tree roots.

3.6.2 Additional tree planting is also proposed that will complement the Student Heart project. New tree planting is proposed whereby suitable species for the site and for climate change will be chosen.

3.7 Construction

- 3.7.1 Careful consideration has been given regarding the buildability of the proposals. The arboricultural impact assessment plans illustrate that sufficient room exists to locate the site compound and contractor parking outside the RPA's of the retained trees.
- 3.7.2 Fence protection is required for retained trees and will comprise of Heras fencing and will be based on Figure 2 'Default Specification for Protective Barrier' as recommended within the British Standard 5837:2012. Where appropriate the fencing will be braced to withstand impacts.
- 3.7.3 In addition to the fence protection ground protection measures are also required for tree T9, Himalayan Birch. The existing hard standing that is located to the north and within the RPA of this tree will act as ground protection for the duration of the construction works.
- 3.7.4 A tree works schedule to facilitate the proposal has not yet been finalised. In the event tree pruning is required it is judged that trees can be pruned to acceptable standards in accordance with British Standard 3998:2010 'Tree Works - Recommendations'.
- 3.7.5 Any new service runs will connect to the existing. In the unlikely event new services are required and are to be placed unavoidably within the RPA of retained trees then all new installations will be carried out in accordance with the guidelines set out in NJUG Publication No.10 and Section 7.7 of the British Standard 5837:2012.

4. SUMMARY

4.2 Conclusions

- 4.1.1 The British Standard 5837:2012 states that there is the need to avoid misplaced tree retention; for example, to attempt to retain too many unsuitable trees on a site may result in excessive pressure on the trees during the development work and subsequent demands for their removal post development. However where design permits, the retention of lower category trees can be beneficial providing screening and softening to a development and a sense of maturity to a scheme.
- 4.1.2 Careful planning of site operations are recommended so as to avoid any adverse impact to the retained trees. In order to safeguard the trees through the development it is recommended that a site specific Arboricultural Method Statement is drawn up and implemented.
- 4.1.3 It is concluded that there is an adequate juxtaposition with the retained tree stock and proposal therefore reducing any post development concerns. As such it is regarded that there will not be any future pressure to significantly prune, or to seek permission to remove trees within the site. With further regard to any concerns of debris and seasonal nuisances it is considered that this can be managed by good design and as part of the overall general maintenance of the site.

4.2 Post development tree management.

- 4.2.1 Tree owners have a duty of care to maintain and manage their tree stock and it is recommended that regular tree inspections are undertaken by a person competent in arboriculture.

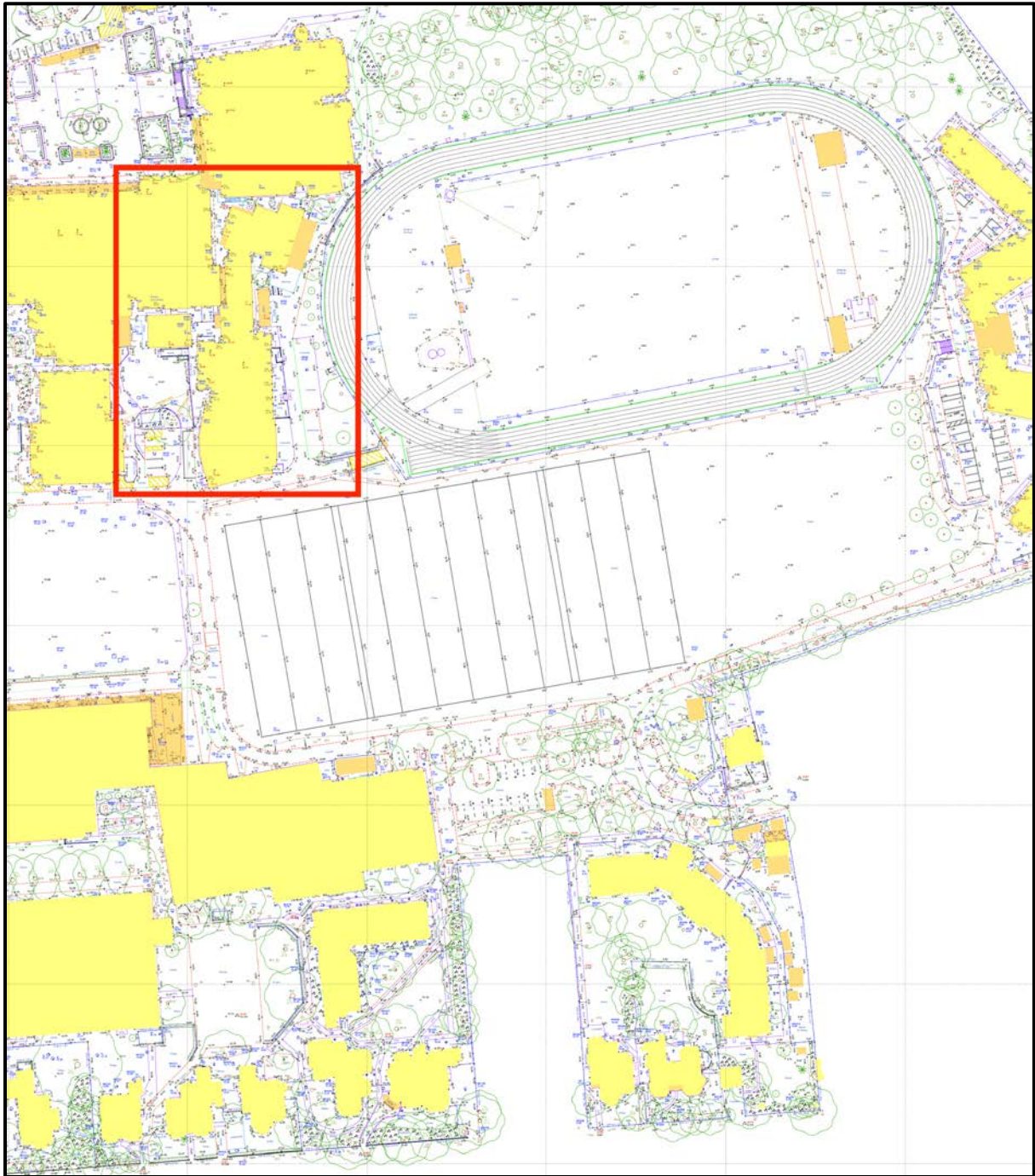
4.2.2 Section 8.8.2 of the British Standard: 2012 recommends post development aftercare of trees following the completion of development works. It is recommended the following is considered with regard to post development inspection of retained trees:

1. Trees that grow on a site prior development may, if adversely affected be in decline over a period of several years before they die. This varies due to age, species, condition prior to development, extent of damage during development, soil conditions and climate. It is recommended that regular inspections are undertaken.
2. Where trees are protected by planning controls, it is recommended that the LPA is informed, and necessary agreements obtained prior to any remedial works.
3. Following completion of a development it is recommended that the arboricultural consultant inspects the trees for signs of intolerance to the change of conditions and the effect of the development. There may be a need for additional tree works to those originally specified.
4. Maintenance of newly planted trees is important during the establishment period, of at least two years and it is recommended an appropriate maintenance schedule is included with the Landscaping Scheme.

APPENDIX 1

Site Location Plan

Site Location Plan



APPENDIX 2

Tree Survey Data

KEY TO TREE SCHEDULE

Tree No: Relates to individual trees identified within the Tree Survey Schedule and Tree Constraints Plan

Species: Common name

Height: Estimated height expressed in meters

ST: Stem diameter of the main trunk taken at 1.5m above ground level or in accordance with Annex C BS5837:2012.

Height in M of Canopy: Information of the first significant branch and direction of growth in order to inform on ground clearance.

Abbreviations:

#:	Estimated
Ave:	Average
A.G.L:	Above ground level
SULE:	Safe Useful Life Expectancy

Branch Spread: Estimated crown radius expressed in meters, taken for each cardinal compass point.

Age Class:

Y	Young - Less than one third of natural life expectancy
SM	Middle aged - One to two thirds of natural life expectancy
M	Mature - More than two thirds of natural life expectancy
OM	Over mature
NP	Newly Planted

Physiological Condition:

G	Good
F	Fair
P	Poor
D	Dead

Notes:

Root Protection Area: This is a layout tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability and where the protection of the roots and soil structure is treated as a priority (detailed in paragraph 3.7 British Standard 5837:2012 'Trees in relation to Construction-Recommendations').

Young trees with a stem diameter of less than 150mm: Whilst the presence of young trees of good form and vitality is generally desirable (i.e those which have the potential to develop into quality mature specimens), they need not necessarily be a significant constraint on the site's potential (detailed in paragraph 4.5.10 British Standard 5837:2012 'Trees in relation to Construction-Recommendations').

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where 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 a 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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>			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 dominant 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 remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for 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 life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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 benefits	Trees with no material conservation or other cultural value	Grey

TREE NO.	SPECIES	Height in (M)	CALCULATED STEM DIA (MM)	BRANCH SPREAD				HEIGHT IN M OF CANOPY	AGE CLASS	PHYS. COND	COMMENTS	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY GRADING
	(Latin)			N	E	S	W						
T1	Midland Thorn <i>Crataegus oxyacantha</i>	5	105	1.6	1.6	1.3	1.6	1.8n	SM	G	Pleasant landscape feature. Long term not regarded as a constraint. Remove planting stakes and tie	10 to 20	C2
T2	Tibetan cherry <i>Prunus serrula</i>	5	100	2.2	1.7	1.7	1.8	2n	SM	G	Early semi mature specimen growing in a soft landscape area. Pleasant feature, potential to further develop. Long term not regarded as a significant constraint. Could be transplanted. No work	>40	C2
T3	Black Walnut <i>Juglans nigra</i>	4.5	320	4	3.5	4	3.2	1n	SM	G	Growing in a soft landscape area. Early mature specimen. Previously crown lifted. Potential to further develop. Pleasant internal feature. No work	20 to 40	B2
T4	Mountain Hawthorn <i>Crataegus pinnatifida</i>	4.5	80	1.5	1.8	1.5	1.6	2	Y	G	1 of 4 newly planted trees growing in an area of existing soft landscape. Not a constraint. Could be transplanted. Remove planting stakes and tie	>40	C2
T5	Mountain Hawthorn <i>Crataegus pinnatifida</i>	4.5	80	1.3	4	1	1	2.2e	Y	G	1 of 4 newly planted trees growing in an area of existing soft landscape. Not a constraint. Could be transplanted. Remove planting stakes and tie	>40	C2
T6	Mountain Hawthorn <i>Crataegus pinnatifida</i>	4.5	65	1.2	1.3	0.5	1	2e	Y	G	1 of 4 newly planted trees growing in an area of existing soft landscape. Not a constraint. Could be transplanted. Remove planting stakes and tie	>40	C2
T7	Mountain Hawthorn <i>Crataegus pinnatifida</i>	4	65	1.2	1	1	1	2.2s	Y	G	1 of 4 newly planted trees growing in an area of existing soft landscape. Not a constraint. Could be transplanted. Remove planting stakes and tie	>40	C2
T8	Purple Leaf Plum <i>Prunus cerasifera</i> 'Purpureum'	7.5	330	2.5	2.5	3	2.2	2w	SM	F	Growing adjacent to existing cafe terrace and running track. Pleasant internal feature. Provides welcome shading. Crown lifted in the past. Long term should not be regarded as a significant constraint. No work	20 to 40	B2
T9	Himalayan Birch <i>Betula utilis</i>	11.5	350	3.5	3.8	4.5	3.6	2.7s	SM	G	Growing in an area of soft landscaping - most prominent tree within survey area. No work	20 to 40	B2
T10	Chanticleer Pear <i>Pyrus chanticleer</i>	7	130	1.8	1.2	1.8	1.7	2w	SM	G	Growing in a planting pit adjacent to the existing cafe. Pleasant internal feature. Young semi mature specimen- long term should not be regarded as a significant constraint. No work	20 to 40	B2
T11	Chanticleer Pear <i>Pyrus chanticleer</i>	3	45	1	1.2	0.5	0.7	N/A	Y	F	Young specimen growing in a planting pit. Not regarded as a constraint. Remove planting stakes and tie	10 to 20	C2
T12	Chanticleer Pear <i>Pyrus chanticleer</i>	7.5	150	2	1.8	2	2	2e	SM	G	Pleasant internal feature growing in a planting pit. Foliage just starting to encroach on adjacent single storey building. Long term should not be regarded as a significant constraint. Prune back from building	20 to 40	B2

TREE NO.	SPECIES	Height in (M)	CALCULATED STEM DIA (MM)	BRANCH SPREAD				HEIGHT IN M OF CANOPY	AGE CLASS	PHYS. COND	COMMENTS	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY GRADING
	(Latin)			N	E	S	W						
T13	Mountain Hawthorn <i>Crataegus pinnatifida</i>	5	71	1	1.2	1.3	2	2.2w	Y	F	1 of 2 trees growing in an area of existing soft landscaping. Adjacent to portacabin. Could be transplanted. Becoming shaded out by T14. <i>Remove planting stakes and tie</i>	>40	C2
T14	Mountain Hawthorn <i>Crataegus pinnatifida</i>	5	85	2	2	1.6	2	2w	Y	G	1 of 2 trees growing in an area of existing soft landscaping. Adjacent to portacabin. Could be transplanted. <i>Remove planting stakes and tie</i>	20 to 40	C2
T15	Tree of Heaven <i>Ailanthus altissima</i>	13	490	6.5	6	6	5.5	3e	SM	F	Growing in a modest soft ground area. Shrubs and <i>Lonicera nitida</i> present. BT cables growing through canopy. Provides shading to an existing outdoor seating area <i>No Work</i>	20 to 40	B2
H1	Mixed species	Ave 1.5	Ave 75	0.7	0.7	0.7	0.7	GL	SM	G	Mixed species hedge. Pleasant internal landscape feature. Not regarded as a constraint. Regularly maintained. Average dimensions recorded. <i>No work</i>	10 to 20	C2

APPENDIX 3

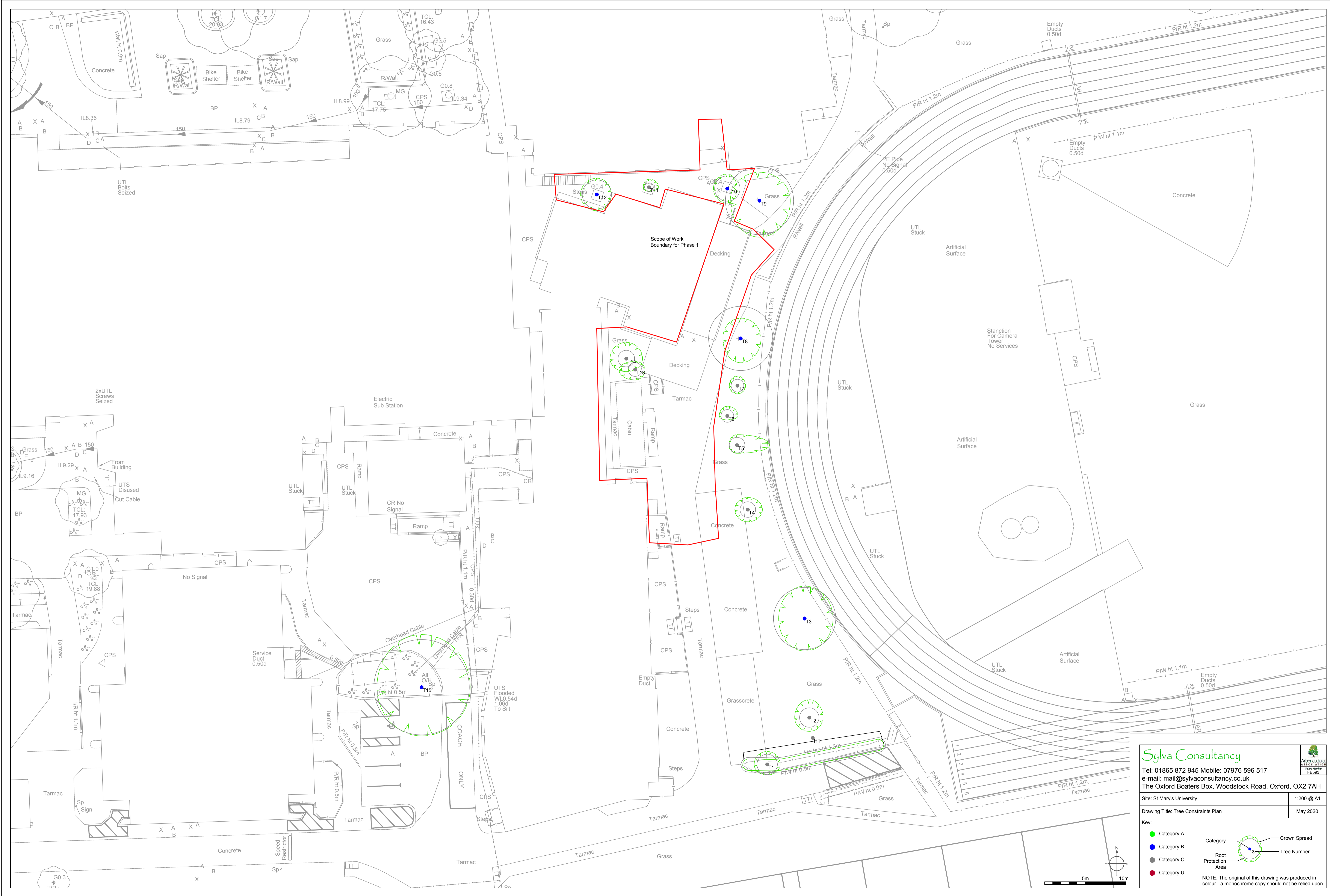
Root Protection Area

ROOT PROTECTION AREA

TREE NO.	SPECIES	NO. OF STEMS	SINGLE STEM DIA (mm)	2-5 STEMS					> 5 STEMS	ROOT PROTECTION AREA - RPA (RADIUS IN M)	RPA (M ²)	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY
				STEM 1 (mm)	STEM 2 (mm)	STEM 3 (mm)	STEM 4 (mm)	STEM 5 (mm)	MEAN STEM DIA (mm)				
T1	Midland Thorn	1	105							1.26	5	10 to 20	C2
T2	Tibetan cherry	1	100							1.20	5	>40	C2
T3	Black Walnut	1	320							3.84	46	20 to 40	B2
T4	Mountain Hawthorn	1	80							0.96	3	>40	C2
T5	Mountain Hawthorn	1	80							0.96	3	>40	C2
T6	Mountain Hawthorn	1	65							0.78	2	>40	C2
T7	Mountain Hawthorn	1	65							0.78	2	>40	C2
T8	Purple Leaf Plum	1	330							3.96	49	20 to 40	B2
T9	Himalayan Birch	1	350							4.20	55	20 to 40	B2
T10	Chanticleer Pear	1	130							1.56	8	20 to 40	B2
T11	Chanticleer Pear	1	45							0.54	1	10 to 20	C2
T12	Chanticleer Pear	1	150							1.80	10	20 to 40	B2
T13	Mountain Hawthorn	1	71							0.85	2	>40	C2
T14	Mountain Hawthorn	1	85							1.02	3	20 to 40	C2
T15	Tree of Heaven	1	490							5.88	109	20 to 40	B2
H1	Mixed species	1	75							0.90	3	10 to 20	C2

APPENDIX 4

Tree Constraints Plan



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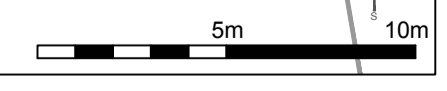
Site: St Mary's University
 Drawing Title: Tree Constraints Plan
 Scale: 1:200 @ A1
 Date: May 2020

Key:

- Category A (Green circle)
- Category B (Blue circle)
- Category C (Grey circle)
- Category U (Red circle)

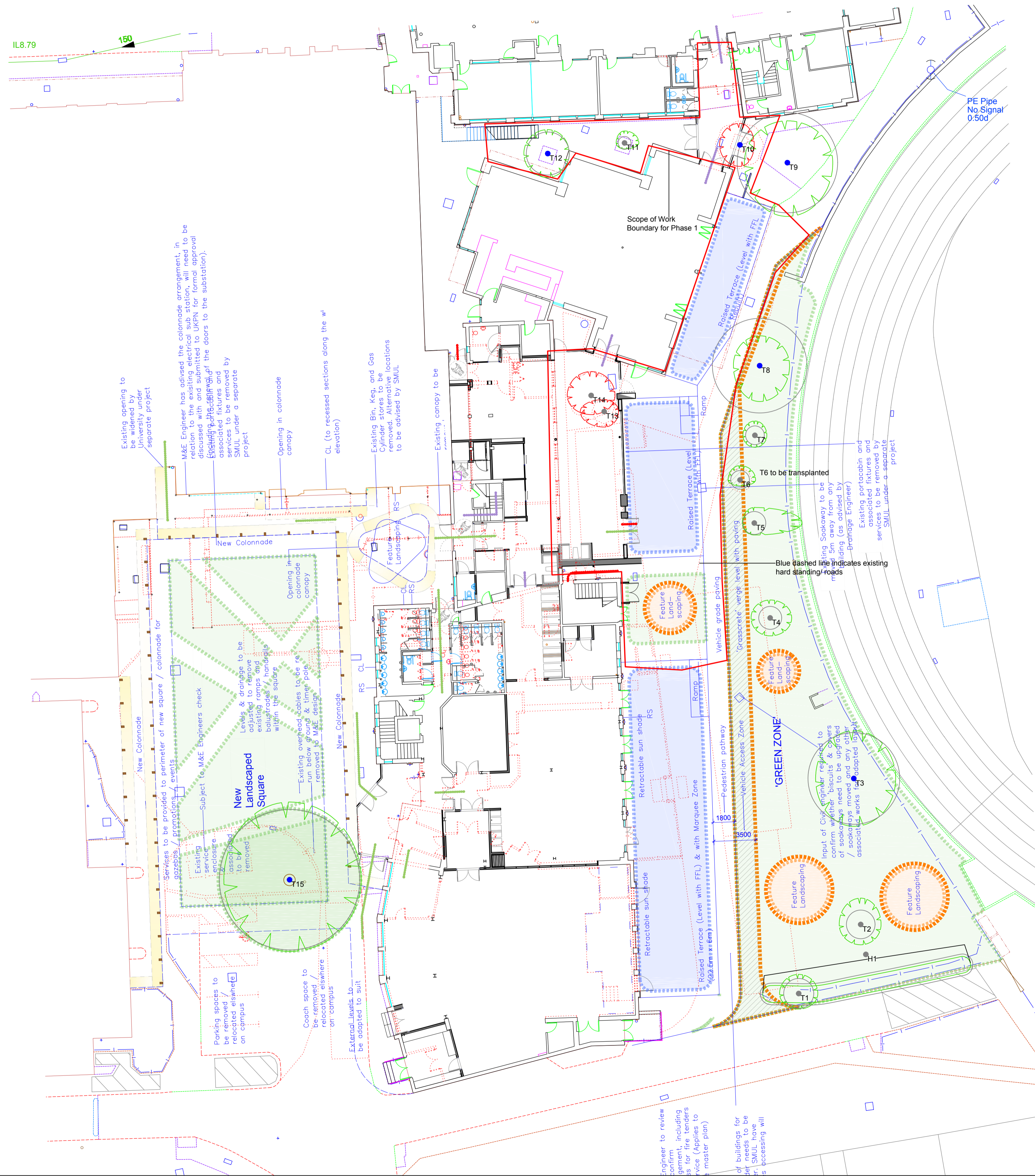
Category Crown Spread
 Root Protection Area
 Tree Number

NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.



APPENDIX 5

Arboricultural Impact Plan



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Site: St Mary's University
 Drawing Title: Arboreal Impact Assessment
 1:200 @ A1
 May 2020

Key:

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

Category 13

- Crown Spread
- Tree Number
- Root Protection Area
- Tree Proposed for Removal

NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

APPENDIX 6

Qualifications

Fiona Bradshaw

MicFor; RFS Dip Arb;F. Arbor.A; Tech Cert (Arbor.A)

I have over 21 years' experience of arboriculture and I am the principal consultant at Sylva Consultancy. I hold the Royal Forestry Society's Professional Diploma in Arboriculture and the Arboricultural Associations Technicians Certificate. I am a Fellow member of the Arboricultural Association and a professional member of the Institute of Chartered Foresters, of which I am also a registered Consultant.

I have the benefit of both a local authority and private practice background and I am frequently instructed to provide advice and assistance relating to trees and the planning process. I am also experienced at compiling expert reports, providing evidence and also appearing as an expert witness at Public Inquires.

I am committed to my continued professional development which is reflected in my regular attendance of seminars and workshops.