



ARBORICULTURAL REPORT

& Impact Assessment

to **BS5837:2012** at:

***Smart Innovation Centre,
Church Street,
Darfield,
Barnsley,
South Yorkshire
S73 9LG***

Prepared for:
Smart Door Solutions Ltd
*Smart Innovation Centre,
Church Street,
Darfield,
Barnsley,
South Yorkshire
S73 9LG*

Date: August 2018

Reference: AWA2312



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1. Introduction

1.1 Instructions and Brief

- 1.1.1 We are instructed by Di Steele of Smart Door Solutions Ltd to visit the site and prepare our findings in a report.
- 1.1.2 The report is required in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, to provide detailed, independent, arboricultural advice on the trees present, in the context of potential development.

1.2 Survey Details

- 1.2.1 The survey took place during July 2018.
- 1.2.2 The trees were surveyed visually from the ground using “Visual Tree Assessment” techniques and in accordance with the guiding principles of British Standard 5837:2012.
- 1.2.3 Any additional off-site trees that could impact a new development design have been included in the tree survey parameters.
- 1.2.4 The tree positions were plotted on Ordnance Survey map base-layer using enhanced GPS technology (1-2m accuracy) and laser distance measurer.
- 1.2.5 This report has been prepared by Mr Adam Winson, Chartered Arboriculturist, MSc, BSc (Hons), MICFor, MArborA, Principle and Director of AWA Tree Consultants Ltd. The tree survey data collection was carried out by Mr James Brown BSc (Hons) Arboriculture, MArborA, Arboriculturist at AWA Tree Consultants Ltd.
- 1.2.6 Full qualifications and experience are included within **Appendix 1**. Explanatory details regarding the survey methodology are included within **Appendix 2**. A full explanation of the tree data can be found at **Appendix 3**. Full details of all the trees surveyed are found in **Appendix 4**. For tree locations refer to the Tree Constraints Plan at **Appendix 5** and for detail of the impacts of the new development refer to the Tree Impacts Plan at **Appendix 6**.

2. The Site

2.1 Location and Description

- 2.1.1 The site is located on Church Street in Darfield, a village within the Metropolitan Borough of Barnsley, South Yorkshire.
- 2.1.2 The site is an office building with attached grounds. Residential properties are situated to the east and south of the site, with a war memorial garden and library to the west. Church Street borders the site's northern boundary.
- 2.1.3 The approximate area of the survey is highlighted in the (2017) image below:



3. The Trees

3.1 Legal

- 3.1.1 Due to the large potential penalties for illegally carrying out work to protected trees, before authorising any tree works a check should be made with the Local Planning Authority to see if the trees are covered by a Tree Preservation Order or if they are within a Conservation Area (unless such works are approved by planning permission). If either applies, then statutory permission is required before any works can take place.
- 3.1.2 When appointing a tree surgeon, only properly qualified and experienced companies should be used, who have adequate Public Liability and Employer's Liability Insurance. All tree work should be carried out according to British Standard 3998:2010 *Tree Work - Recommendations*.

3.2 Tree Survey Results

- 3.2.1 The tree survey revealed 17 items of woody vegetation, comprised of 12 individual trees and 5 groups of trees or hedge groups.
- 3.2.2 Of the surveyed trees: 3 trees are retention category 'A', 2 trees are retention category 'B', and the remaining 12 trees or groups are retention category 'C' (explanatory details regarding the retention categories are included within Appendix 3).
- 3.2.3 Species diversity at the site is fair, with species present including Plane, Beech, Holly and Cherry. The site's trees had a good age diversity with a mix of semi-mature, early-mature and mature trees.
- 3.2.4 The site's most significant tree is the large mature Plane T1 situated within the adjacent war memorial garden to the west of the site. The tree is situated in a prominent roadside position and is in good overall condition, providing high amenity value to the site and surrounding area. The tree is situated on raised ground with retaining walls to the north and west of the tree's main stem and downward sloping ground to the east.
- 3.2.5 Two large Beech trees are also situated within the adjacent war memorial garden (T3 and T4). Both are large trees in good overall condition and provide moderate to high amenity value to the site and the surrounding area. Both trees have soil compaction at their bases from foot traffic, with

extensive compaction at the base of T4.

- 3.2.6 The site's southern boundary is bordered by adjacent trees G7 to T11. The trees are all of low value but provide effective dense screening between the site and the properties to the south. The trees were only given cursory inspections due to their adjacent locations.
- 3.2.7 The Holly T12 at the site's south eastern corner is in good overall condition and provides moderate amenity value to the site.
- 3.2.8 The Plane T13 has been previously 'topped' at around 4m from ground level, with regrowth forming the tree's crown. The calculated RPA for the tree was therefore likely an exaggerated representation of the tree roots' actual morphology and disposition; the detailed RPA has therefore been slightly adjusted to provide a more accurate representation. There is a moderate cavity with minor decay to the eastern side of the tree's main stem at 1.5m.
- 3.2.9 The site's eastern boundary is bordered by adjacent low value managed hedges G16 and G17 which provide some screening between the site and neighbouring residential property to the east.
- 3.2.10 Some trees were inaccessible (as detailed in Appendix 4) in such cases measurements were estimated and the condition values are indicative only.
- 3.2.11 The tree Root Protection Area (RPA) is detailed on the Tree Constraints Plan at Appendix 5. The RPA for each tree has been plotted as a polygon centred on the base of the stem. Due to the presence of roads, structures, topography (and past tree management) the RPA is likely to be a simplified representation of the tree roots actual morphology and disposition.
- 3.2.12 Some lower value tree, hedge and shrub groups do not have RPAs detailed on tree plans. The detailed extent and spread of the low value groups, in conjunction with the tree schedule, is sufficient to assess the associated potential constraints.

4. Arboricultural Impact Assessment

4.1 Proposed New Development

- 4.1.1 It is proposed to build a new access drive, new site access point with entrance gates and new car parking area. The development proposals have been provided by my client and inform this arboricultural impact assessment and the Tree Impacts Plan at Appendix 6.

4.2 Direct Impacts

- 4.2.1 From assessing the new development proposals, 2 trees will require removal as they are situated in the footprint of the structure or their retention and protection throughout the development is not suitable.
- 4.2.2 The trees that require removal are the adjacent Holly trees T2 and T5. They are both of low value and their removal will have little negative impact at the site. Their removals can be easily mitigated against with new landscape plantings at the site if required.
- 4.2.3 The adjacent Plane T1 will require its eastern crown lifting to around 3m from ground level to allow vehicle access along the proposed new drive. It is likely the tree will readily tolerate these pruning works and the amenity value it provides will not be significantly diminished.
- 4.2.4 The adjacent shrubby groups G7 and G10 will require pruning back to the boundary fenceline to facilitate the proposed new car parking area. The species within the groups are all able to tolerate significant pruning works with little negative impacts.

4.3 Indirect Impacts

- 4.3.1 The tree Root Protection Area (RPA) detailed on the Tree Constraints Plan at Appendix 5, has been used as a layout design tool, to inform on the area around a tree where the protection of the roots and soil structure is treated as a priority.
- 4.3.2 Potentially damaging activities are proposed in the vicinity of retained trees. The new access drive passes through the RPA of the high value Plane T1 and Beech T3. The construction of hard surfaces within the RPA can have negative impacts on tree roots. However, to overcome the potential negative impacts, the ground levels around both T1 and T3 are to remain

the same, with the proposed access road sloping up slightly west from the proposed new access point, and the new drive is to be constructed using 'no-dig' type construction methods with a porous final surface.

- 4.3.3 It was noted that the stump of a recently removed tree is situated to the front of the building, close to where the proposed new access point and gate will be situated. It is therefore likely that the recently removed tree will have limited the eastern root extension of T1 and that any significant roots found in this area are likely remaining from the removed tree.
- 4.3.4 The buildability of the proposed development has been assessed in terms of access, adequate working space and provision for the storage of materials, including topsoil, in relation to the trees.

4.4 Suitable Mitigation

- 4.4.1 The development of the site provides an excellent opportunity to undertake new tree planting throughout the site as part of a soft landscaping scheme. As such, suitable new tree planting has the potential to mitigate for the required tree removals and, in the longer term, has the potential to improve the sites tree cover.

4.5 Protection of the Retained Trees

- 4.5.1 The retained trees will require protection by fencing in accordance with BS 5837: 2012, during the development phase.
- 4.5.2 If required by the Local Planning Authority, an associated Arboricultural Method Statement, detailing protective fencing specifications and construction methods close to the retained trees can be provided.

5. Signature

I trust this report provides all the required information.

Signed



.....

Adam Winson, Chartered Arboriculturist, MSc, BSc (Hons), MICFor, ACIEEM.

3rd August 2018

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Appendices

Appendix 1: Authors Qualifications and Experience

Appendix 2: Survey Methodology and Limitations

Appendix 3: Explanation of Tree Descriptions

Appendix 4: Tree Data

Appendix 5: Tree Constraints Plan

Appendix 6: Tree Impacts Plan

Appendix 1: Authors Qualifications & Experience

Mr Adam Winson Chartered Arboriculturist, MSc, BSc (Hons), MICFor, MArborA, ACIEEM, QTRA Registered.

Adam is the company Director and Principle Consultant. He has a mix of the highest level academic qualifications and relevant work experience. He has worked within the tree care profession for over 20 years, and was awarded an MSc in Arboriculture and Urban Forestry, with distinction. Adam is a Chartered Arboriculturist and a Registered Consultant with the Institute of Chartered Foresters, a Professional Member of the Arboricultural Association and has original research published by the UK Forestry Commission. His work ranges from individual expert tree inspections to managing trees on major multimillion pound housing developments and infrastructure projects. His work often involves trees with preservation orders or litigation, and he has appeared as a tree expert, at planning appeal hearings up to the Crown Court.

Mr James Brown BSc (Hons) Arboriculture, MArborA.

James has a BSc (Hons) in Arboriculture, attaining first class honours, as well as being awarded the Institute of Chartered Forester's Student award. He is a Professional Member of the Arboricultural Association and an Associate of the Institute of Chartered Foresters. James previously worked in Europe's largest tree nursery and has experience of Local Authority tree officer work. His main work consists of tree surveys for development projects and preparing Tree Protection Schemes to BS 5837:2012.

Mr Dave Farmer FdSc (Arb), MArborA, PTI (Lantra).

Dave has a Foundation Degree in Arboriculture (with Distinction) and is qualified in Professional Tree Inspection. He is a Professional Member of the Arboricultural Association and an Associate of the Institute of Chartered Foresters. Dave has many years of experience within the tree care profession, including lecturing in arboriculture. His work focuses on diagnosing potential tree risk problems, and recommending appropriate treatments and work programmes.

Dr Felicity Stout Ph.D, MA, BA (Hons), Cert Ed (Forestry), TechArborA.

Felicity has worked in the tree care profession for the last 10 years. She has a Certificate in Higher Education in Forestry, with a focus on Urban Forestry. She has practical arboricultural contractor experience and is a qualified and experienced Social Forestry practitioner. Felicity has a PhD in History, with a particular interest in the history of woodland and tree management and has published in The Arboricultural Journal on this subject.

Mr Ricky Nos BSc (Hons), FdSc (Arboriculture), TechArborA.

Ricky is a trained arborist with 10 years of experience in the private and local authority sectors, taking in all aspects of arboricultural work. He has a Foundation Degree in Arboriculture and a BSc (Honours) in Outdoor Management, and is a technician Member of the Arboricultural Association. His main work consists of tree surveys for development projects, involving tree inspections and the preparation of Tree Reports to BS 5837:2012.

Appendix 2: Survey Methodology and Limitations of Report

The survey was undertaken in accordance with British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. The trees were assessed objectively and without reference to any proposed site layout. The trees were surveyed from the ground using 'Visual Tree Assessment' (VTA) methodology. VTA is appropriate and is endorsed by industry guidance. It is used by arboriculturists to evaluate the structural integrity of a tree, relying on observation of trees biomechanical and physiological features. Measurements are obtained using a diameter tape, clinometer, laser distometer and loggers tape. Where this is not practical measurements are estimated. Tree groups have been identified in instances as defined in BS 5837:2012. Shrubs and insignificant trees may have been omitted from the survey.

This report represents a BS5837 tree survey and should not be accepted as a detailed tree safety inspection report; however, tree related hazards are recorded and commented upon where observed, yet no guarantee can be given as to the absolute safety or otherwise of any individual tree. All recommended tree work must be to BS 3998:2010 - 'Tree Work: Recommendations'.

The findings and recommendations contained within this report are valid for a period of twelve months from the date of survey. The author shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with these guidelines and terms.

Appendix 3: Explanation of Tree Descriptions

HEIGHT of the tree is measured from the stem base in metres. Where the ground has a significant slope the higher ground is selected.

CROWN HEIGHT is an indication of the average height at which the crown begins and includes information of the first significant branch and direction of growth.

STEM DIAMETER is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed at this point; the diameter is measured close to ground level or else a combined stem diameter is calculated.

CROWN SPREAD is measured from the centre of the stem base to the tips of the branches in all four cardinal points.

AGE CLASS of the tree is described as young, semi-mature, early-mature, mature, or over-mature.

PHYSIOLOGICAL CONDITION is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vigour, presence of disease and dieback.

STRUCTURAL CONDITION is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.

LIFE EXPECTANCY is classed as; less than 10 years, 10-20 years, 20-40 years, or more than 40 years. This is an indication of the number of years before removal of the tree is likely to be required.

Retention Categories

A (marked green on Appendix 5) = retention most desirable. These trees are of very high quality and value with a good life expectancy.

B (marked in blue on Appendix 5) = retention desirable. These trees are of good quality and value with a significant life expectancy.

C (marked in grey on Appendix 5) = trees which could be retained. These trees are of low or average quality and value, and are in adequate condition to remain until new planting could be established.

U (marked in red on Appendix 5) = trees for removal. These trees are in such a condition that any existing value would be lost within 10 years.

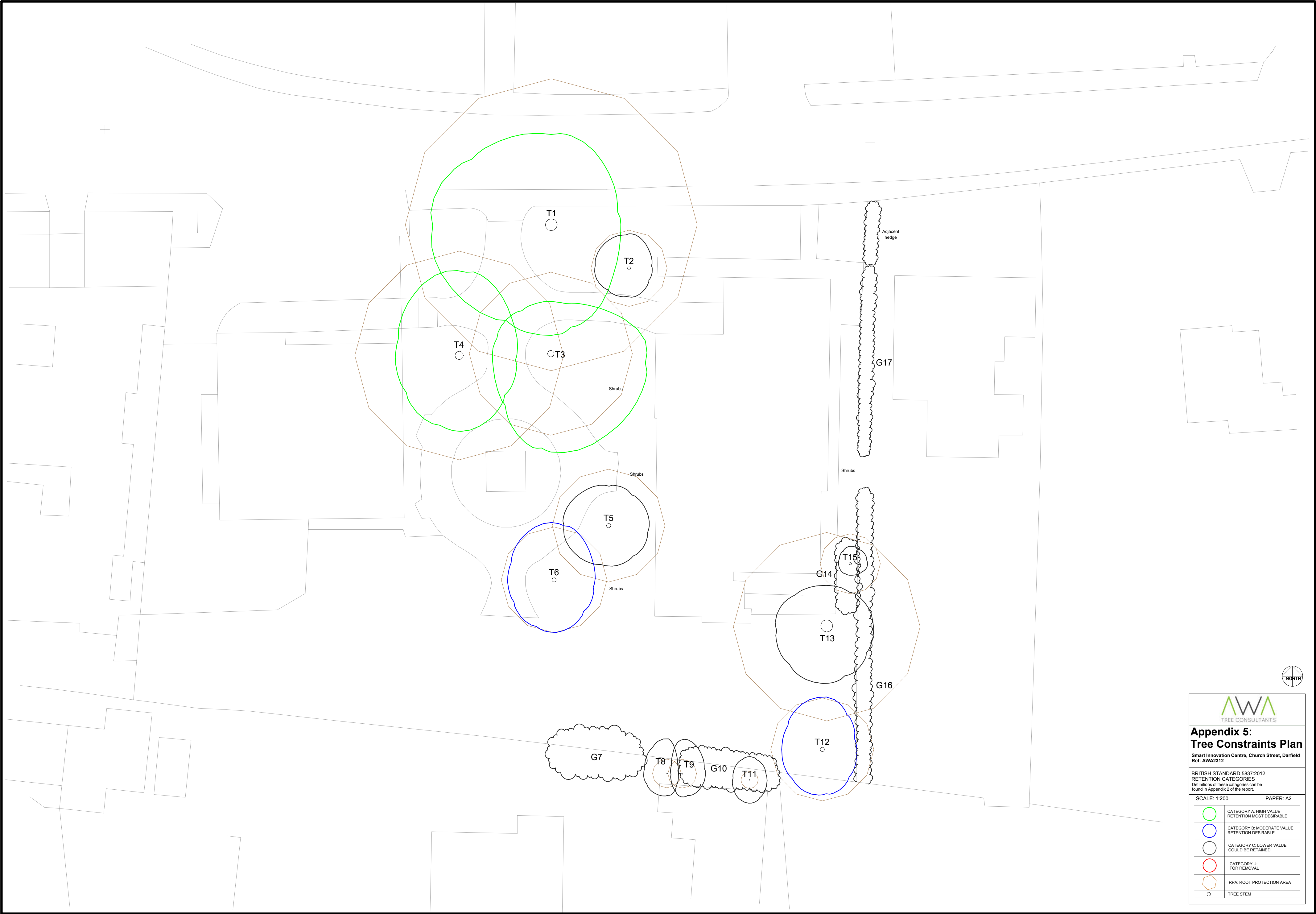
Appendix 4: Tree Data

Tree ID	Tree Species		Measurements					Crown (m)					Tree Condition							Value		Management
	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Dia (mm)	Estimated	Ave Height	N	E	S	W	Roots	Stem	Crown	Comments	Physiological	Structural	Life Expectancy	Amenity	Category	Works
T1	Plane	<i>Platanus x hispanica</i>	Mature	17	1	1020	No	1.5	8	6	9.5	11	Exposed roots	Single stemmed. Vertical. Ivy covered. Old pruning wounds. Minor cavities	Old pruning wounds	Some exposed primary roots. Situated on raised ground with retaining walls to the north and west. Occasional moderate pruning wounds at 2 to 3m on main limbs with minor decay. Moderate cavity with decay from old pruning wound at 3m.	Good	Fair	>40 yrs	High	A	Crown lift eastern crown to around 3m from ground level to facilitate access drive, pruning to suitable points
T2	Holly	<i>Ilex aquifolium</i>	Early-mature	11	4	100, 110, 170, 140	No	1.5	3	2	2.5	3	Soil compaction	Multiple stemmed at base. Vertical. Epicormic growths. Old pruning wounds. Minor cavities	Normal	Soil compaction to east from footfall. Pruning wounds to main stems from previous crown lifting.	Fair	Fair	20 to 40 yrs	Moderate	C	Removal required to facilitate development
T3	Beech	<i>Fagus sylvatica</i> 'Purpurea'	Early-mature	17	1	570	No	3	4.5	8.5	8.5	5	Exposed roots	Single stemmed. Vertical. Old pruning wounds	Minor deadwood	Some exposed primary roots. Moderate old pruning wound at 4m on northern side of main stem but good cut and healing well.	Good	Good	>40 yrs	High	A	No works required

Tree ID	Tree Species		Measurements					Crown (m)					Tree Condition							Value		Management
	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Dia (mm)	Estimated	Ave Height	N	E	S	W	Roots	Stem	Crown	Comments	Physiological	Structural	Life Expectancy	Amenity	Category	Works
T4	Beech	<i>Fagus sylvatica</i> 'Purpurea'	Mature	18	1	730	No	3	7.5	5	6.5	5.5	Soil compaction. Exposed roots	Single stemmed. Vertical. Old pruning wounds. Minor cavity	Minor deadwood	Extensive soil compaction at base with numerous exposed primary roots. Minor hollow at base to south within buttress root flare. Moderate pruning wound to northern side of main stem at 2m. Main stem bulges at 2m. Stem veers west at 3m with two co- dominant stems with a tight union and partially included bark.	Good	Fair	>40 yrs	High	A	No works required
T5	Holly	<i>Ilex aquifolium</i>	Early- mature	8.5	5	140, 160, 200, 160, 210	No	1.5	3.5	3.5	3.5	4	Exposed roots	Multiple stemmed at base. Vertical. Ivy covered. Tight unions. Minor cavities. Minor decay. Stubs	Normal	Exposed primary roots. Old pruning wounds with minor cavities and decay from previous crown lifting.	Good	Fair	20 to 40 yrs	Moderate	C	Removal required to facilitate development
T6	Cherry	<i>Prunus</i> sp.	Early- mature	9	1	370	No	1.5	5	3.5	4.5	4	No visual defects	Single stemmed. Multiple stemmed at 1.5m. Vertical. Old pruning wounds. Stubs. Tight unions. Partially included bark	Minor deadwood	Stem measured low.	Fair	Fair	>40 yrs	Moderate	B	No works required

	Tree Species		Measurements					Crown (m)				Tree Condition								Value		Management
Tree ID	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Dia (mm)	Estimated	Ave Height	N	E	S	W	Roots	Stem	Crown	Comments	Physiological	Structural	Life Expectancy	Amenity	Category	Works
G7	Cherry Laurel	<i>Prunus laurocerasus</i>	Early-mature	7	10+	40	No	0	See plan				No visual defects	Single and Multiple stemmed	Normal	Cherry Laurel group. Partially in site, partially in adjacent land to south.	Good	Good	20 to 40 yrs	Moderate	C	Prune to fenceline to facilitate car parking
T8	Sycamore	<i>Acer pseudoplatanus</i>	Semi-mature	8	1	100	Yes	3	3	1	2	2	Limited access around base	Single stemmed. Vertical	Normal	Adjacent, no access.	Good	Good	>40 yrs	Low	C	No works required
T9	Sycamore	<i>Acer pseudoplatanus</i>	Semi-mature	8	1	100	Yes	3	3	2	2	1	Limited access around base	Single stemmed. Vertical	Normal	Adjacent, no access.	Good	Good	>40 yrs	Low	C	No works required
G10	Privet. Elder.	<i>Ligustrum sp. Sambucus sp.</i>	Semi-mature	5	10+	40	Yes	1	See plan				Limited access around base	Single and Multiple stemmed	Minor dieback. Minor deadwood	Adjacent group of Privet and Elder shrubs. No access.	Fair	Fair	20 to 40 yrs	Moderate	C	Prune to fenceline to facilitate car parking
T11	Sycamore	<i>Acer pseudoplatanus</i>	Semi-mature	7.5	1	60	Yes	3	2	1.5	2	1.5	Limited access around base	Single stemmed. Vertical	Normal	Adjacent, no access.	Good	Good	>40 yrs	Low	C	No works required
T12	Holly	<i>Ilex aquifolium</i>	Mature	7	1	360	No	1	4.5	3	4	3.5	No visual defects	Single stemmed. Vertical. Bark damage. Stubs. Epicormic growths	Normal		Good	Good	>40 yrs	Low	B	No works required

Tree ID	Tree Species		Measurements					Crown (m)					Tree Condition							Value		Management
	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Dia (mm)	Estimated	Ave Height	N	E	S	W	Roots	Stem	Crown	Comments	Physiological	Structural	Life Expectancy	Amenity	Category	Works
T13	Plane	<i>Platanus x hispanica</i>	Mature	8.5	1	1050	No	3	3.5	4	5	4.5	No visual defects	Single stemmed. Vertical. Moderate cavity. Minor decay. Old pruning wounds	Small / sparse. 50% dead / absent	Plane monolith. 'Topped' at 4m with crown made from regrowth. Moderate cavity with decay to eastern side of main stem at 1.5m.	Fair	Fair	10 to 20 yrs	Low	C	No works required
G14	Privet	<i>Ligustrum vulgare</i>	Semi-mature	3	10+	30	No	0	See plan				No visual defects	Multiple stemmed at base. Vertical. Stubs. Bark damage	Minor deadwood		Fair	Fair	10 to 20 yrs	Low	C	No works required
T15	Holly	<i>Ilex aquifolium</i>	Early-mature	6	1	210	No	0	1.5	1.5	1	1	No visual defects	Single stemmed. Vertical. Epicormic growths	Normal	Pruned from west	Good	Good	20 to 40 yrs	Low	C	No works required
G16	Cypress	<i>Cupressus sp.</i>	Early-mature	3	10+	60	Yes	1	See plan				Limited access around base	Single and Multiple stemmed. Vertical. Old pruning wounds. Stubs. Tight unions	Minor dieback	Adjacent well managed Cypress hedge. No access.	Fair	Good	20 to 40 yrs	Moderate	C	No works required
G17	Cypress	<i>Cupressus sp.</i>	Early-mature	3	10+	60	Yes	1	See plan				Limited access around base	Single and Multiple stemmed. Vertical. Old pruning wounds. Stubs. Tight unions	Minor dieback	Adjacent well managed Cypress hedge. No access.	Fair	Good	20 to 40 yrs	Moderate	C	No works required



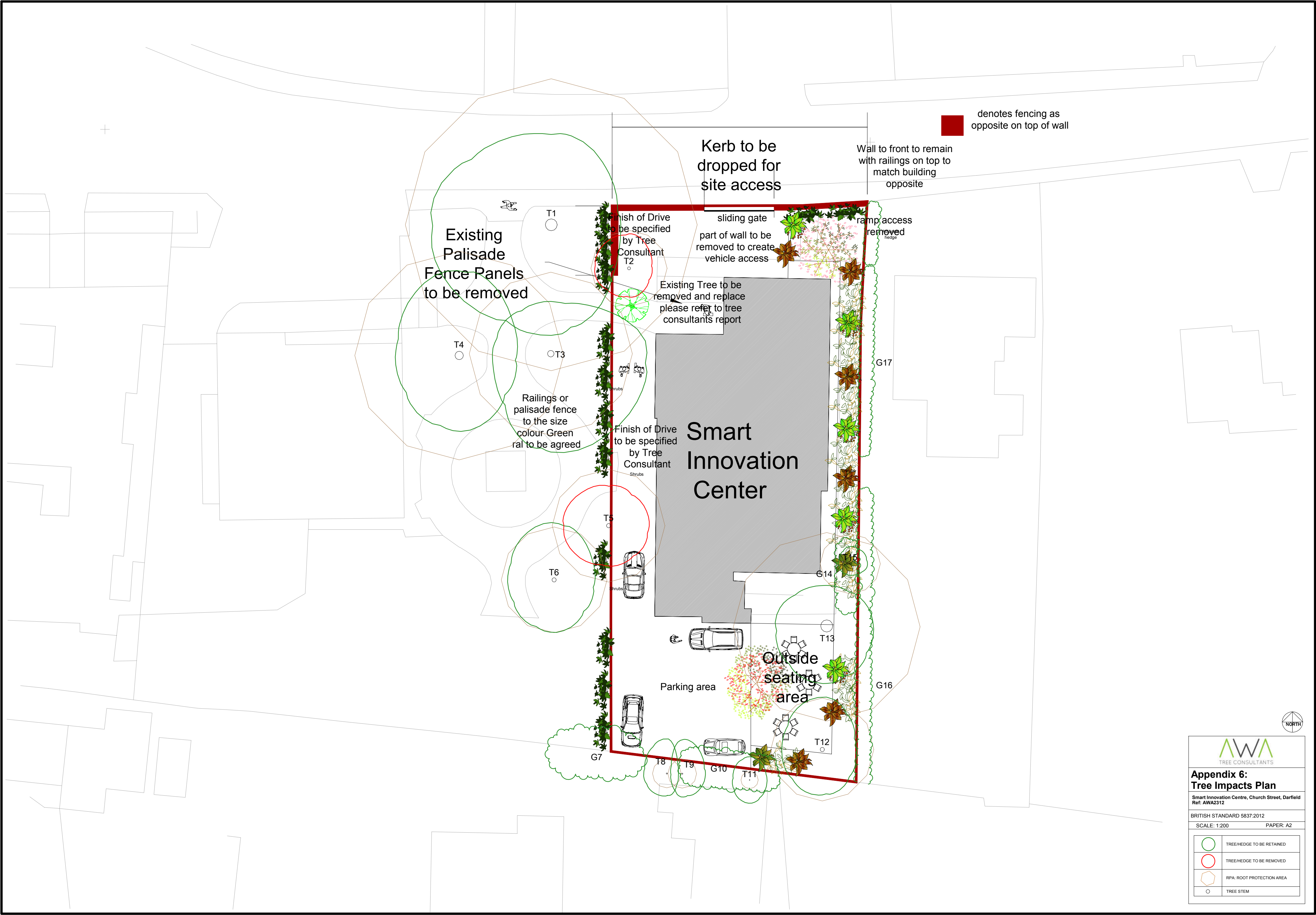
**Appendix 5:
Tree Constraints Plan**

Smart Innovation Centre, Church Street, Darfield
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BRITISH STANDARD 5837:2012
RETENTION CATEGORIES
Definitions of these categories can be found in Appendix 2 of the report.

SCALE: 1:200 PAPER: A2

	CATEGORY A: HIGH VALUE RETENTION MOST DESIRABLE
	CATEGORY B: MODERATE VALUE RETENTION DESIRABLE
	CATEGORY C: LOWER VALUE COULD BE RETAINED
	CATEGORY U: FOR REMOVAL
	RPA: ROOT PROTECTION AREA
	TREE STEM





**Appendix 6:
Tree Impacts Plan**

Smart Innovation Centre, Church Street, Darfield
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BRITISH STANDARD 5837:2012
SCALE: 1:200 PAPER: A2

	TREE/HEDGE TO BE RETAINED
	TREE/HEDGE TO BE REMOVED
	RPA: ROOT PROTECTION AREA
	TREE STEM