

# **Site – Heatons Cycle Link, Priestnall School Fields to St Johns School Section**

**Mr Peter Pollard**

HND in Arboriculture

## **TREE SURVEY REPORT**

**Greenspace Consultancy**

**Arboriculture & Habitat**

1<sup>st</sup> floor, Endeavour House

C/O Town Hall

Stockport

SK1 3XE

**Tel:** 0161 2176111

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## 1. Executive Summary

- 1.1 Trees were plotted and assessed individually. Comments were made where it was identified as presenting potentially significant elevated risk, being of particular note or requiring specific management treatments.
- 1.2 This section of the path runs from north to south from Priestnall school fields, through Heaton Mersey Common and along the eastern boundary of St Johns Primary School. It passes through a variety of woodland settings and existing footpath types.
- 1.3 At the entry point from Kingsleigh Road, the existing path is only around 1m wide. If full path width is to be achieved here, it will encroach into adjacent garden(s) and may also mean the removal of the mature Willow tree adjacent to the substation. Progressing east towards Cherry Holt Avenue, the hawthorn will require pruning to provide unhindered access. Along the northern boundary of the site, there are several self-seeded trees along the boundary, which are unsuitable and are to be removed and replaced. There is a wide, well maintained footpath on the northern section of the route through Priestnall fields and to gain the width required the path is to be extended on the eastern edge. This will result in the removal of the self-seeded trees and re-stocking the hawthorn hedge. Where the path now passes through the old gate posts and veers west into the established woodland. There should be little impact here as there is an existing wide concrete path. Continuing west towards the Allerdean Walk entrance, there are two trees in severe decline, which will require removal.
- 1.4 Where the main path continues south through Heaton Mersey Common, the majority of the route is on unsurfaced path through a woodland. To keep tree removal to a minimum it will be necessary to employ a no dig/minimum dig method. At the southern exit there is a Sycamore tree very close to the proposed route, with roots of the tree passing over the desired line. It will be necessary to remove this tree.
- 1.5 As the path proceeds south towards St Johns School, the path is only 2m wide, with two mature trees growing within the path, which will require removal.
- 1.6 The path later becomes New Beech Road, which has several inappropriate, self-seeded trees along it, which will require removal along with some dead trees. Alongside the northern boundary of the path is an old, established hawthorn hedge, with several other species of trees dotted along its length. There is significant dead wood within some of the canopy, which should be removed, considering the public are going to be encouraged to use this route.
- 1.4 Several of the trees along the route have been noted as posing a hazard and these have been highlighted in the data table in Appendix 2.
- 1.5 There is likely to be significant tree loss and a separate landscaping plan should be produced to offset these losses.

## **2. Terms of Reference**

### **2.1 Instruction**

#### **2.1.1 Greenspace Consultancy is instructed by Phil Gibbon of Stockport MBC:**

Carry out assessment of trees alongside the current path which runs north to south from Priestnall School playing fields past St Johns Primary School onto New Beech Road.

Assess at an appropriate level of detail and record any tree identified as presenting a significantly elevated risk

Produce a plan and schedule of trees setting out our data survey

Produce a report outlining our findings and propose work to allow the works to be carried out

### **3. Limitations**

3.2.1 The Trees were assessed visually from ground level. Where potential problems were identified, further inspection by tree climbing is recommended. No digging or drilling methods were employed during this survey.

3.2.2 This report and associated documents remain the copyright of Greenspace Consultancy and there shall be no transfer of rights to any third party without our express consent

### **4. Introduction**

4.1 The trees have been assessed in accordance to British Standard 5837 (2012), Trees in relation to design, demolition and construction.

4.2 The assessment takes account of the structural and physiological condition of the tree, its age, dimensions and any conservation or landscape value

4.3 The retention category of each Tree or groups of trees is based on the information detailed above using the following categories.

U	= Remove (irremediable or with less than 10 years contribution).
A	= High quality and value, preferably with min. 40 years contribution.
B	= Moderate quality and value.
C	= Low quality and value. Also young trees with stem diameter below 150mm (these may be considered for relocation).

## **5. Statutory Controls**

- 5.1 The whole site is designated as an area Tree Preservation Order (TPO)
- 5.2 As the changes to the site, including tree felling, would be considered as a planning application, it would not be subject to the Forestry Act (1967), in regard to requiring a felling license.

## **6. Method**

- 6.1 The area was assessed as a group and a number of individual trees with unique identifying numbers allocated.
- 6.2 A visual assessment was carried out from the ground, to determine the health and structural condition. Dimensions were measured where appropriate or estimated otherwise.
  - 6.2.1 Height - overall estimated height of the tree in metres (rounded up to the nearest metre for trees over 10m high.)
  - 6.2.2 Stem diameter - measured in millimetres at 1.5m above ground (on sloping ground measured on the upslope of the stem) in accordance with annex C of BS5837:2012
  - 6.2.3 Branch spread - measured in metres (rounded up to the nearest half metre) along the four cardinal points of the compass to derive an accurate representation of the crown.
  - 6.2.4 Height of crown - the existing height, measured in metres, above ground level of the first significant branch.
  - 6.2.5 Age class - Young (Y) Middle aged (MA) Mature (M) Over Mature (OM)
  - 6.2.6 Physiological condition - Good (G) moderate (M) poor (P) dead (D)
  - 6.2.7 Health and significant defects - overall form of the Tree, presence of decay, any physical defects and observations.  
Category U or A to C grading as defined in table 1 BS.5837:2012
  - 6.2.8 Management recommendations - including any further investigations required, wildlife habitat potential, management or pruning works.
  - 6.2.9 The Estimated Remaining Contribution measured in years (<10, 10+, 20+, 40+)

## **7. Significant Findings**

- 7.1 The trees along the route of the path are varied in species and age. The existing path is generally well maintained and quite wide in places so little or no action may be required. Along the access from Allerdean walk there are a birch and an ash in severe decline, which will pose a threat to path users.
- Where the path passes through Heaton Mersey Common, there is no surfaced path for the majority of the route and significant work will be required to install the desired path.
- Approaching St Johns school there are two mature trees on the existing path, which cause a severe pinch point.
- Along the north side of New Beech Road section of the path runs and old established hawthorn hedge which in places overhangs the path, in amongst the hedge there are also dead trees, which will require attention.

## **8. Conclusions**

- 8.1 Tree loss on the Priestnall section of the footpath should, with careful planning, be minimal. On the Heaton Mersey section, the footpath could be upgraded with little loss of trees, but the surface will have to be sympathetic towards the roots, which currently criss-cross the path, otherwise significant tree loss may be necessary.
- Some tree removal and cutting back will be required on the St Johns section of the route to remove pinch points, overhanging vegetation and dead trees, which threaten the route.

## **9. Recommendations**

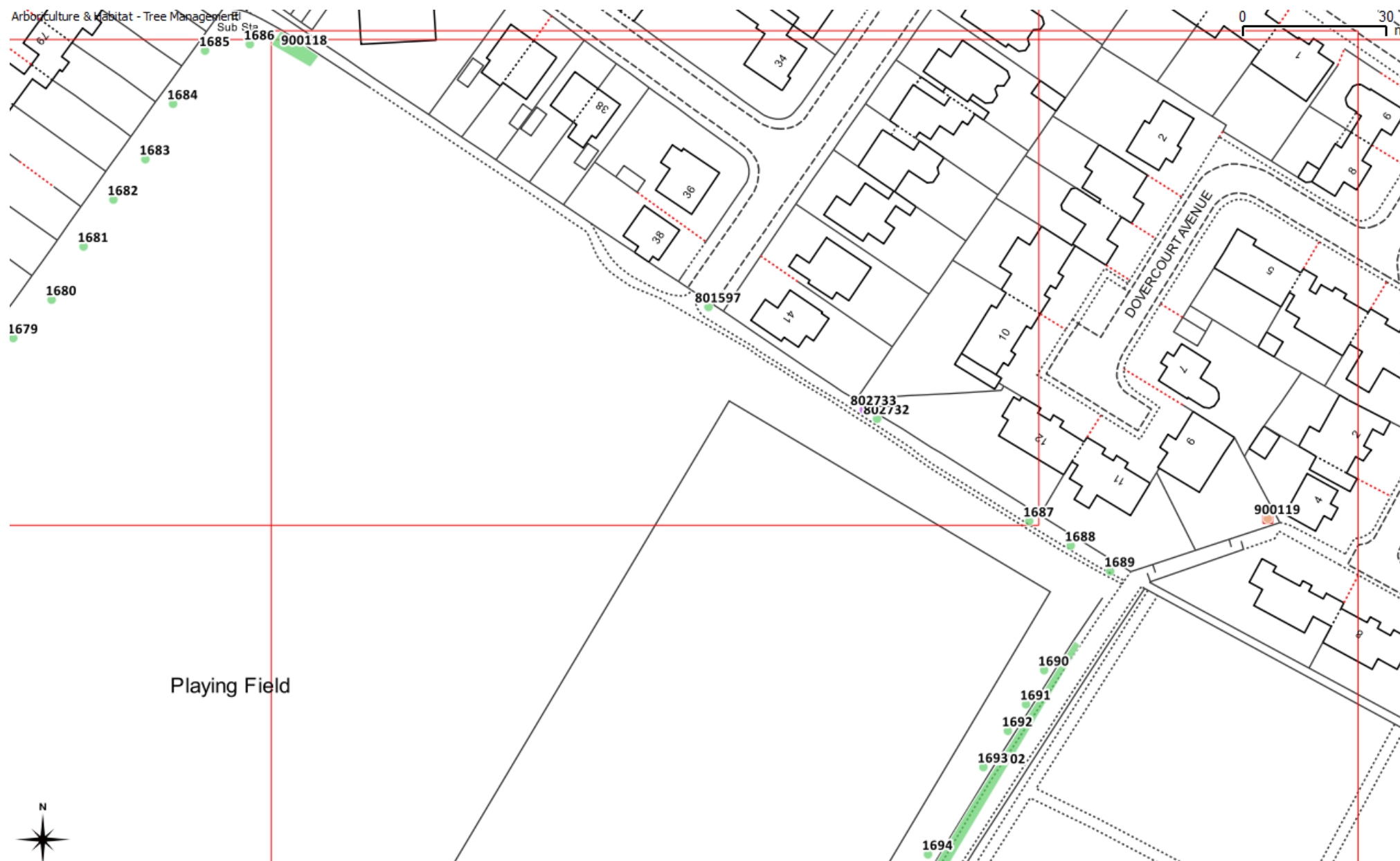
- 9.1 Depending on the final path width, the mature willow tree at the Kingsleigh Road entrance may require removal. Some felling will be required on the southern section of Priestnall fields, where the current 1.5m wide path passes close to several trees.
- The declining birch and Ash on Allerdean walk, will require removal to remove the threat they pose.
- Within Heaton Mersey Common, minimal dig/no dig methods will have to be employed, if tree loss it to be kept to a minimum, as the current path/desire line passes over the roots of many trees.
- As the path approached St Johns Primary, there is a pinch point, with two mature trees on the path, which it will be necessary to remove.
- Along the New Beech Road section of the path, it will be necessary to cut back overhanging trees to gain the full width required. There are also several dead trees which require removal along with dead wood from within the canopies of other trees along the route.
- Several inappropriate trees should be removed as they are creating a pinch point at the side of the Stella Maris School

## **10. References**

British Standard 5837 (2012) - Trees in relation to design, demolition and construction.  
British Standard 3998 (2010) – Recommendations for tree works

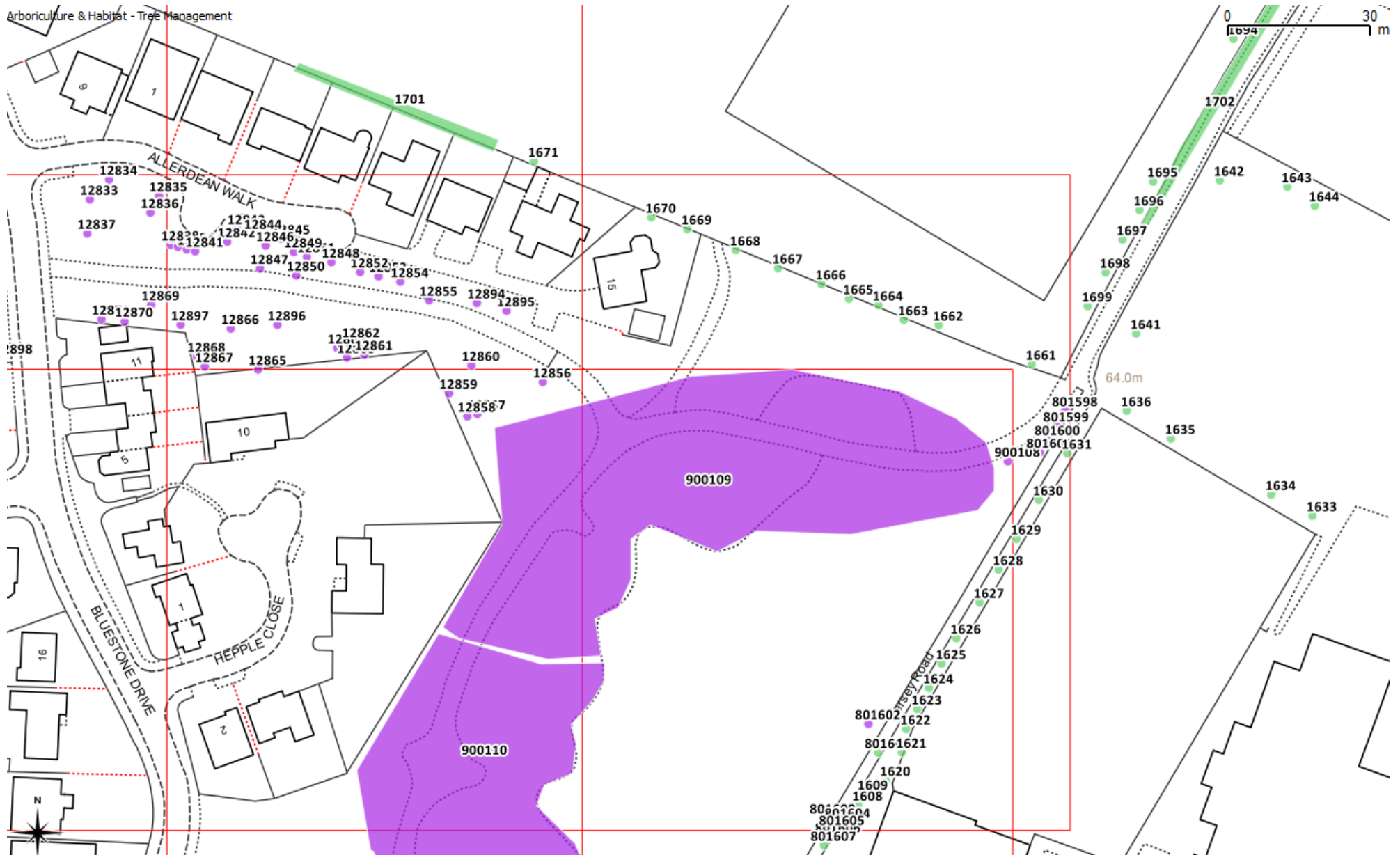
## **Appendix 1**

## Tree Plan – Priestnall School Fields (North Section)





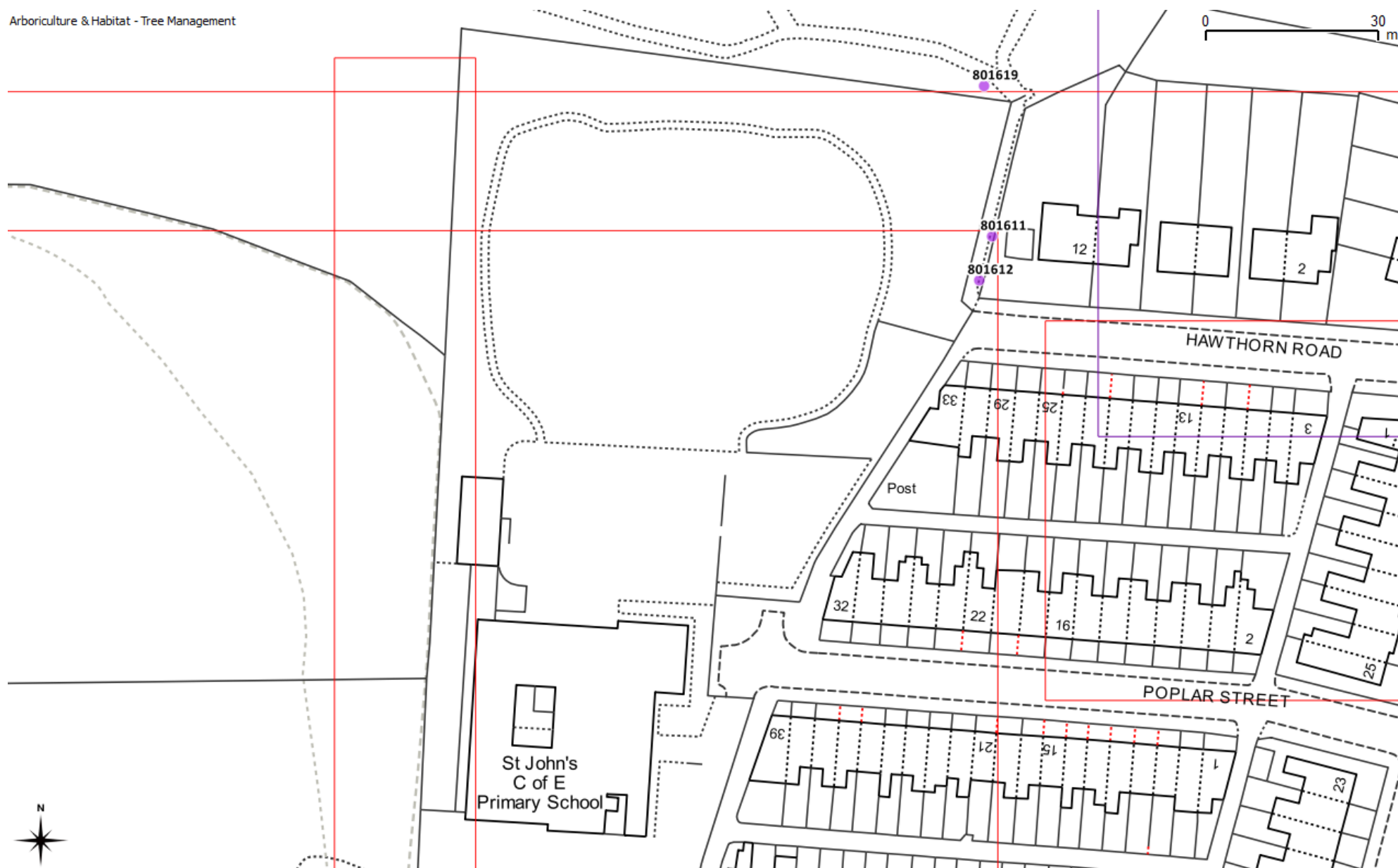
## Tree Plan – Priestnall School Fields (South Section)



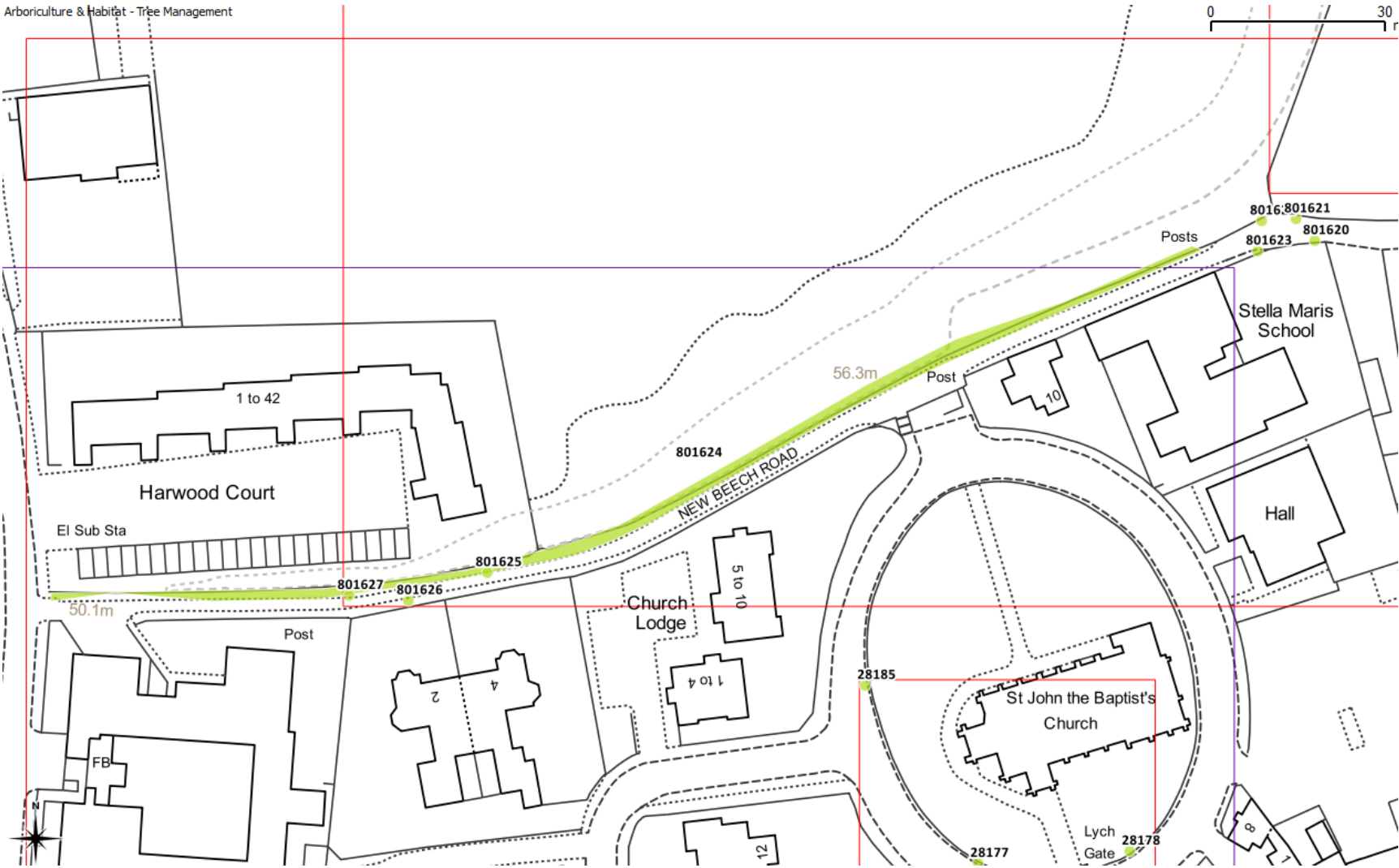


# St Johns Primary School (North Section)

Arboriculture & Habitat - Tree Management



St Johns Primary School (South Section)



## **Appendix 2**

## Priestnall School Fields to St Johns Primary – data table (new additions in bold)

Tree Number	Species	Age	DBH	Height	Crown spread	Structural Condition	Health Condition	Life Expectancy	Priority	Works Required	Comments	Retention category
801597	Crataegus monogyna	M	400	5	4	Fair	Good	3		No work required		B1
<b>1686</b>	<b>Salix alba</b>	<b>M</b>	<b>1000</b>	<b>20</b>	<b>14</b>	<b>Fair</b>	<b>Good</b>	<b>&gt;50</b>		<b>Retain, if possible</b>	<b>If path is to be widened here, the tree will need to be removed</b>	<b>B1</b>
1687	Prunus avium	MA	200	3	3	Fair	Good	2		Fell & Poison	Topped	C1
1688	Acer pseudoplatanus	SM	400	10	8	Poor	Good	3	2	Fell & Poison – including others along fence line	Multi-stemmed, inappropriate for location	C1
1689	Acer pseudoplatanus	MA	300	8	5	Fair	Good	3	1	Fell & Poison	Obscuring street lamp	C1
1690	Quercus robur	MA	350	8	7	Fair	Good	4		No work required	Significant injury on east side of stem @ base	B1
1691	Acer pseudoplatanus	Y	140	6	5	Fair	Good	3		No work required		U
1692	Quercus robur	Y	140	7	6	Fair	Good	4		No work required		U

1693	Quercus robur	MA	400	8	7	Fair	Good	4	1	Crown lift	Bifurcates at 0.25m. Low over path	B1
1694	Acer pseudoplatanus	MA	300	7	7	Fair	Good	3		No work required		B1
1695	Quercus robur	MA	350	8	10	Good	Good	4	3	Remove dead-wood	Minor dead-wood	A1
1696	Quercus robur	MA	350	10	12	Good	Good	4	3	Remove dead-wood	Minor dead-wood	A1
1697	Acer pseudoplatanus	M	1200	12	14	Fair	Good	3	3	Remove dead-wood	Minor dead-wood	B1
1698	Acer pseudoplatanus	MA	250	7	5	Fair	Good	3		No work required		B1
1699	Acer pseudoplatanus	M	1200	12	12	Fair	Good	3		No work required	Multi-stemmed	B1
1702	Crataegus monogyna	M	200	6	4	Fair	Good	3		No work required	Established hedge	B1
801598	Acer pseudoplatanus	M	320	10	8	Poor	Fair	1	2	Fell		C1
801599	Tilia x europaea	M	350	22	8	Fair	Good	3	2	Dead wood and remove epicormic	Minor dead-wood	B1

801600	Tilia x europaea	M	350	22	8	Fair	Good	3	2	Dead wood and remove epicormic	Minor dead-wood	B1
801601	Aesculus hippocastanum	M	250	5	4	Fair	Fair	2		No work required		B1
801609	Deciduous mix	M	700	16	8	Fair	Good	3	2	Dead wood & crown lift	Row of trees on top of retaining wall	B1
801610	Salix caprea	M	350	10	5	Dead	Dead	0	1	Fell	Dead	U
801611	Fraxinus excelsior	M	500	10	6	Fair	Good	2	2	Fell	Too close to path	B1
801612	Prunus avium	M	1200	12	8	Poor	Good	2	2	Fell	Too close to path	B1
801618	Acer pseudoplatanus	M	700	16	8	Fair	Fair	2	2	Dead wood	Minor dead-wood	C1
801619	Acer pseudoplatanus	M	350	12	6	Good	Good	3	0	Fell	Too close to path	A1
801620	Sambucus nigra	MA	180	3	2	Poor	Fair	1	2	Fell & poison	Too close to path	U
801621	Acer pseudoplatanus	Y	50	10	3	Poor	Fair	2	2	Fell & poison	Too close to path	C1
801622	Sambucus nigra	MA	180	3	2	Poor	Fair	1	2	Fell & poison	Too close to path	U
801623	Acer pseudoplatanus	Y	100	4	3	Fair	Good	2	2	Fell & poison	Too close to path	C1



801624	Mixed deciduous (Crataegus, Acer & Ilex)	MA	120	6	3	Fair	Good	3	2	Crown lift, reduce path side & dead wood	Overgrowing route of path	B1
801625	Ulmus glabra	M	350	16	5	Dead	Dead	0	SP1	Fell	Large, dead tree over path	U
801626	Ulmus glabra	M	350	16	5	Fair	Fair	1	2	Fell	Tight against wall	B1
801627	Crataegus monogyna	M	120	3	3	Dead	Dead	0	1	Fell	Dead	U
900108	Tilia x europaea	M	450	16	8	Fair	Fair	>50	1	Remove dead-wood	Significant dead wood	B1
900109	Mixed deciduous (Acer, Tila, Fraxinus) )	M	450	16	8	Fair	Good	>100		No work required	Established woodland	B1
900110	Mixed deciduous (Acer, Fagus, Aesculus)	M	450	16	8	Fair	Good	>100		No work required	Established woodland	B1
900118	Robina pseudoacacia	Y	25	2	1	Fair	Good	50+	2	Fell & treat	Group of Robinia	U
900119	Betula pendula	M	450	10	6	Fair	Good	>50	1	Clear street light	Tree in private garden, growing around lamp	B1

12847	<b>Tilia x europaea</b>	<b>MA</b>	<b>240</b>	<b>10</b>	<b>8</b>	<b>Poor</b>	<b>Poor</b>	<b>2</b>		<b>No work required</b>		<b>C</b>
12850	<b>Betula pendula</b>	<b>M</b>	<b>290</b>	<b>12</b>	<b>6</b>	<b>Poor</b>	<b>Poor</b>	<b>1</b>	<b>1</b>	<b>Fell</b>	<b>In severe decline</b>	<b>U</b>
12855	<b>Fraxinus excelsior</b>	<b>MA</b>	<b>160</b>	<b>11</b>	<b>8</b>	<b>Poor</b>	<b>Poor</b>	<b>1</b>	<b>1</b>	<b>Fell</b>	<b>In severe decline</b>	<b>U</b>
12856	<b>Betula pendula</b>	<b>MA</b>	<b>180</b>	<b>11</b>	<b>8</b>	<b>Fair</b>	<b>Fair</b>	<b>3</b>		<b>No work required</b>		<b>B</b>
12894	<b>Crataegus monogyna Stricta</b>	<b>Y</b>	<b>50</b>	<b>4</b>	<b>2</b>	<b>Good</b>	<b>Good</b>	<b>3</b>		<b>No work required</b>		<b>U</b>
12895	<b>Prunus pandora</b>	<b>Y</b>	<b>50</b>	<b>4</b>	<b>2</b>	<b>Good</b>	<b>Good</b>	<b>3</b>		<b>No work required</b>		<b>U</b>

## **Appendix 3**

## Impact Assessment

	Tree to be Retained – No Impact	Tree to be Retained – with management	Trees to be removed due to condition/development (may alter, dependent upon final line of path)
Tree No	801597, 1686, 1690, 1691, 1692, 1694, 1698, 1699, 1702, 801601, 12847, 12856, 12894, 12895, 900109, 900110	1693, 1695, 1696, 1697, 801599, 801600, 801601, 801609, 801618, 801624, 900108, 900119	1687, 1688, 1689, 801598, 801602, 801603, 801610, 801611, 801612, 801619, 801620, 801621, 801622, 801623, 801625, 801626, 801627, 802732, 802734, 1598, 12850, 12855, 900118

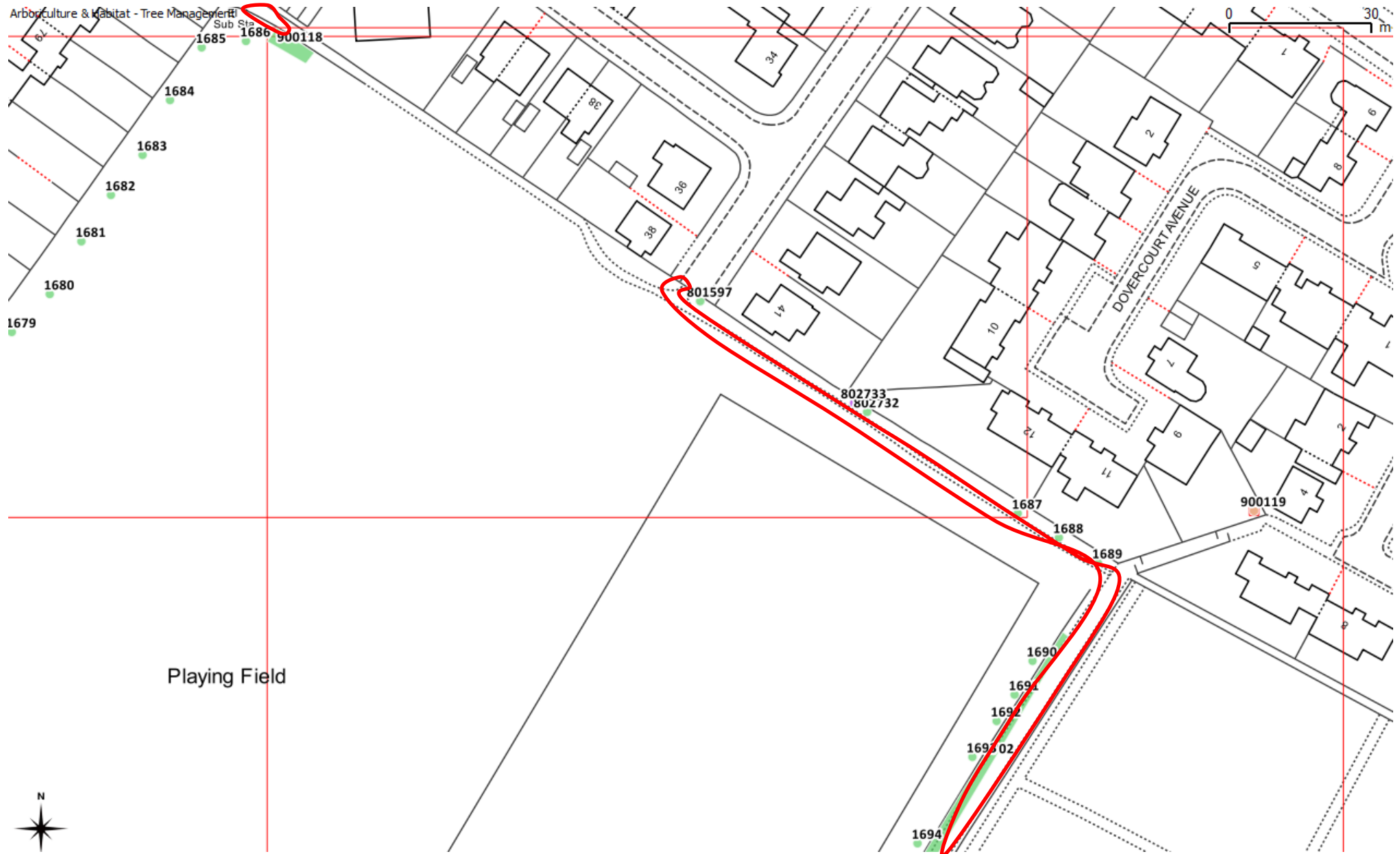
## Root Zone Protection for Retained Trees

Tree No	Root protection radius (m)	Root protection area (m <sup>2</sup> )
801597	4.8	72
1690	4.2	55
1691	1.7	8.9
1692	1.7	8.9
1693	4.8	72
1694	3.6	41
1695	4.2	55
1696	4.2	55
1697	14.4	651
1698	3.0	28
1699	14.4	651
1702	2.4	18
801599	4.2	55
801600	4.2	55
801601	3.0	28
801609	8.4	222
801618	8.4	222
801624	1.4	6.5
12847	2.9	26
12856	2.2	15
12894	0.6	1.1
12895	0.6	1.1

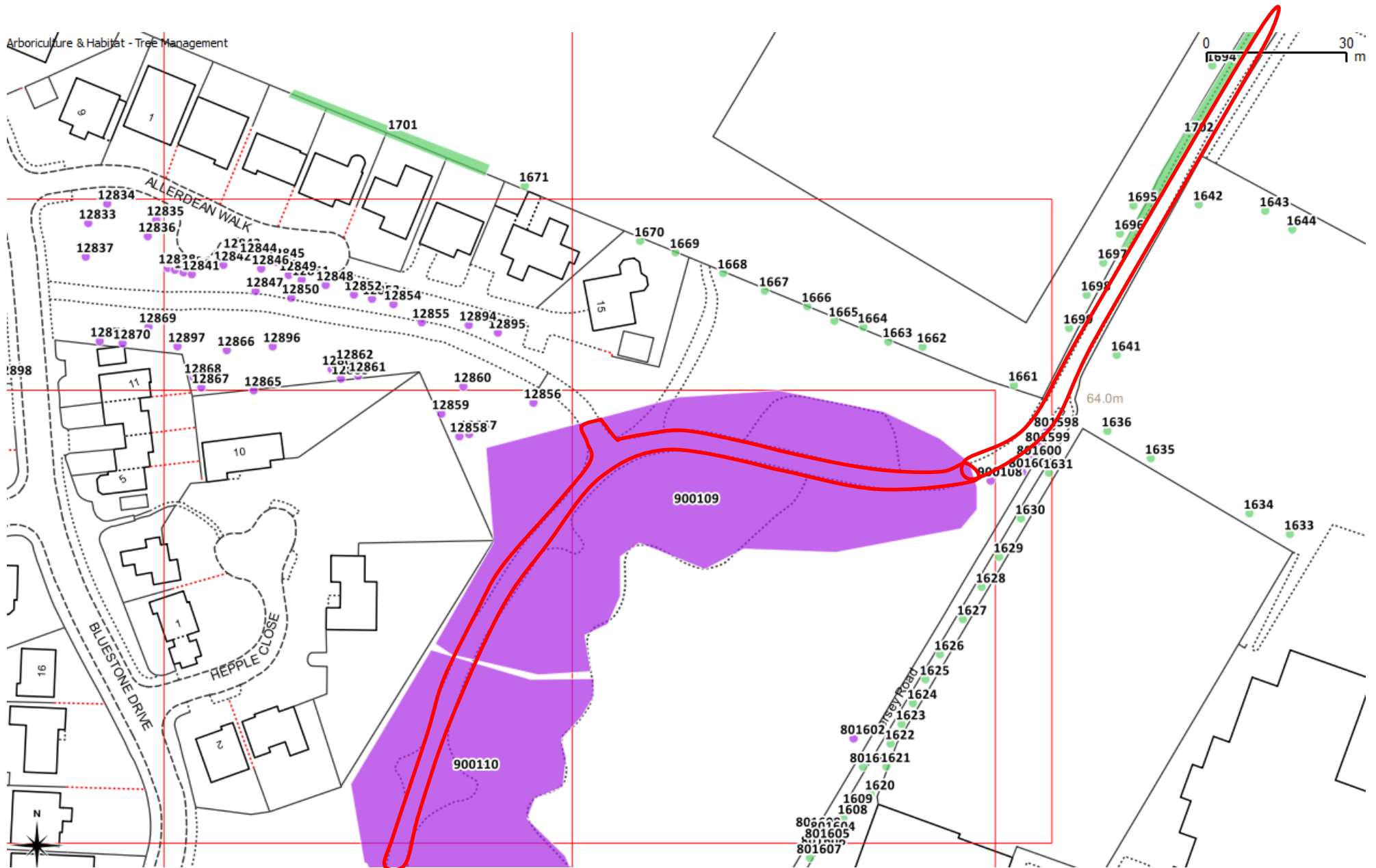
900108	5.4	92
900109	5.4	92
900110	5.4	92
900119	5.4	92

## **Appendix 4**

# Tree Protection Plan – Priestnall School Fields (North Section)

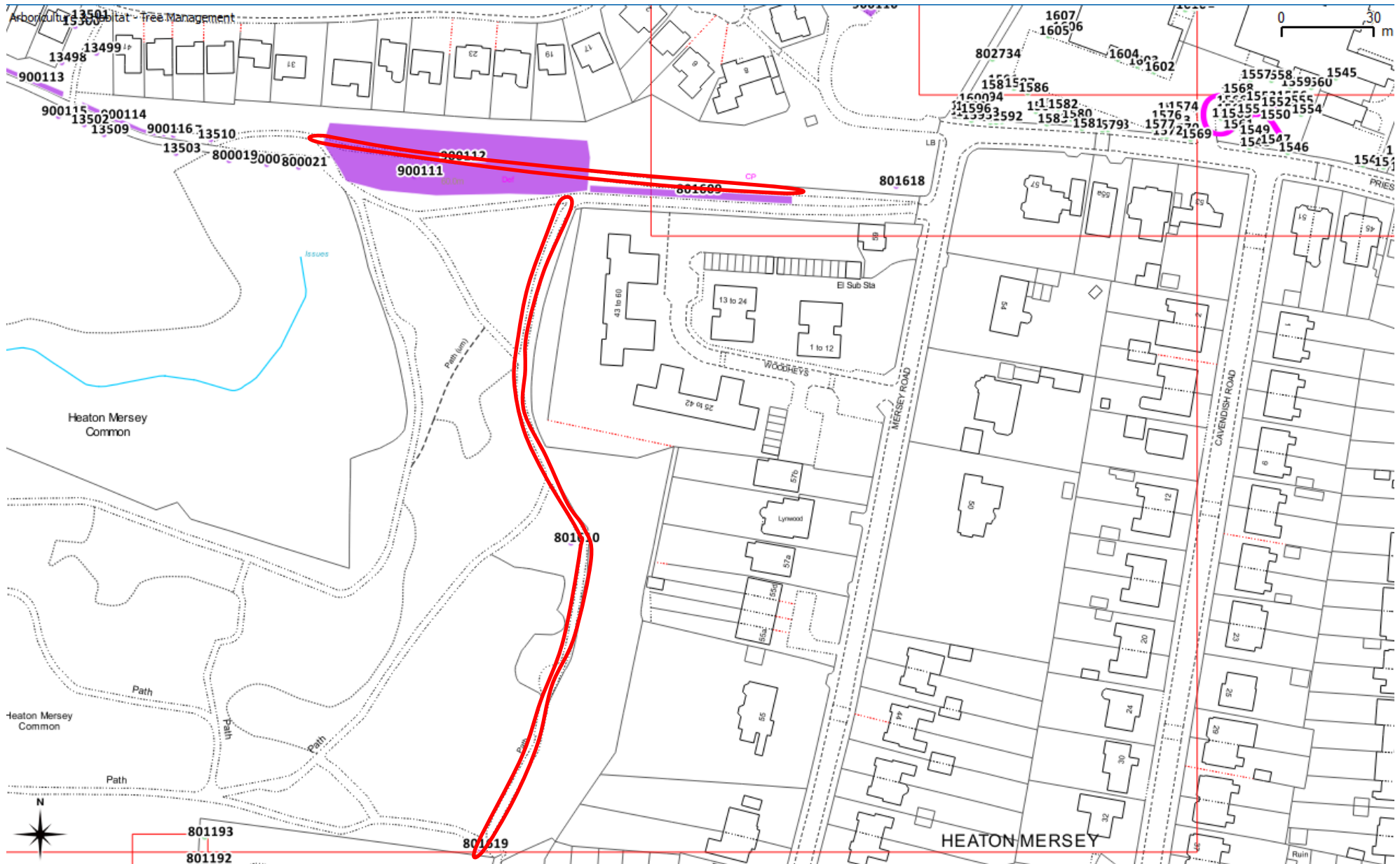


## Tree Protection Plan – Priestnall Fields (south section)

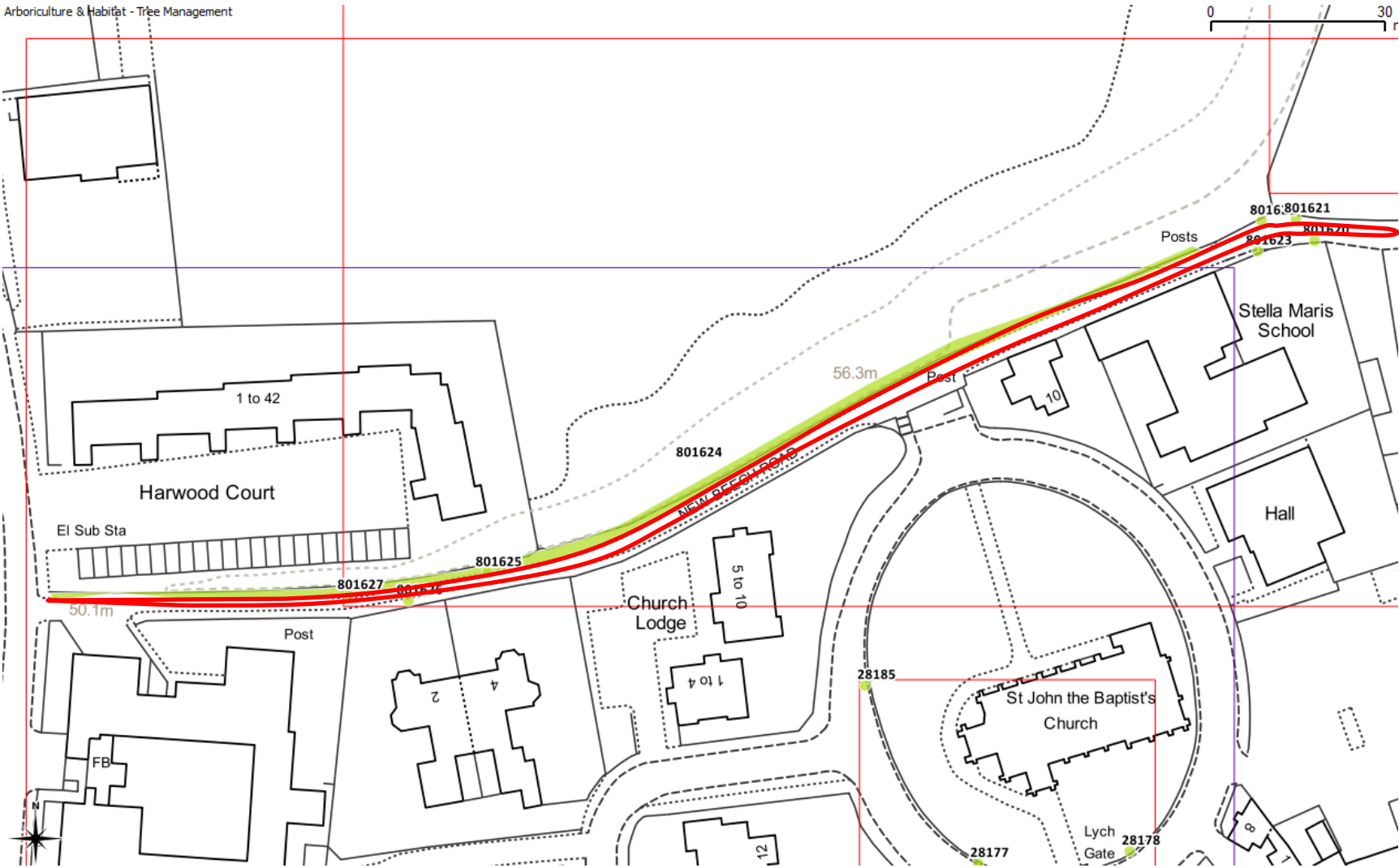




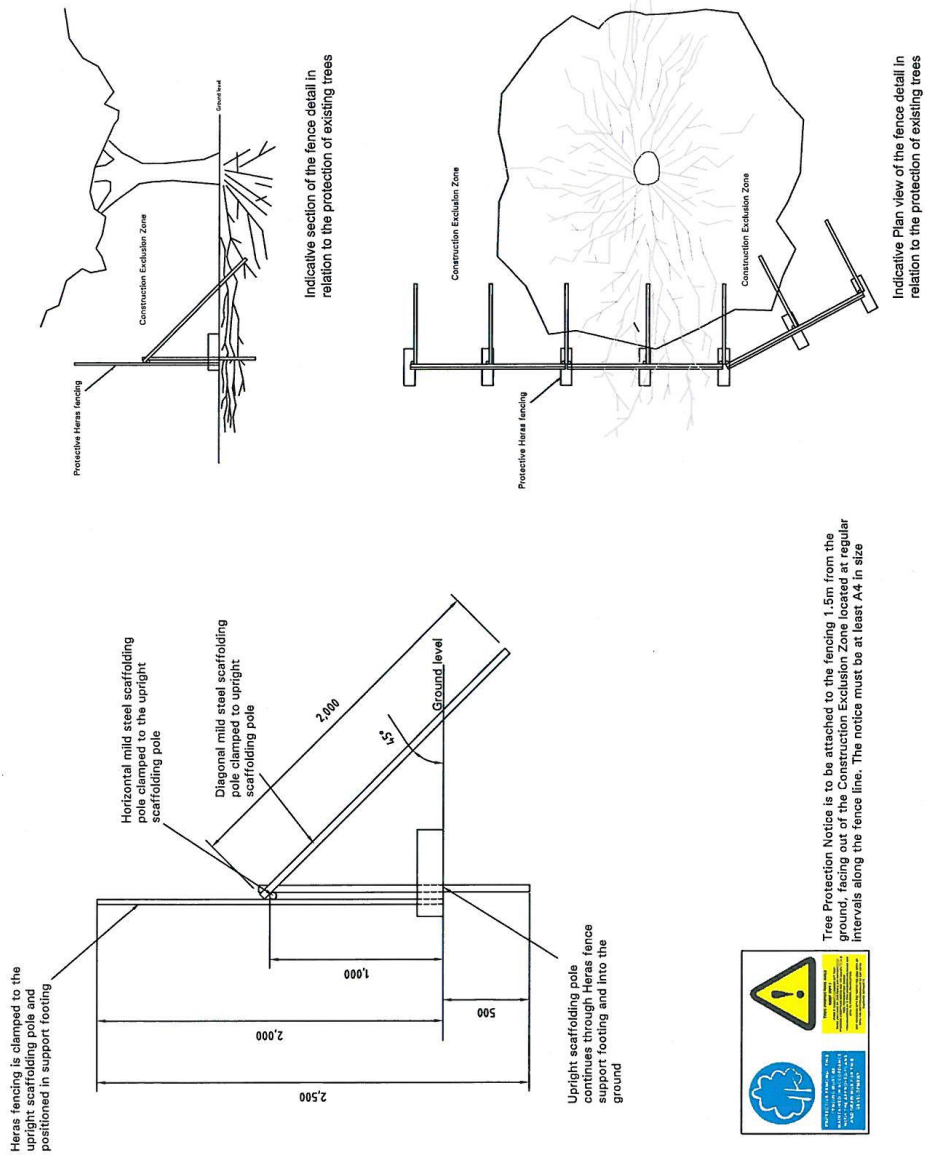
# Tree Plan - Heaton Mersey Common



St Johns Primary School (South Section)



# Protective fencing details



## Protective fencing notice





## **Scheduling of work**

Any tree work noted, should be carried out prior to the erection of the protective fencing. Following the erection of the protective fencing no further tree work should be carried out, without the consent of the Local Authority tree Officer.

## **Root protection areas**

The extent to which a tree may represent a constraint to the development will depend both upon the location of the trunk and the size and nature of the canopy and also the extent of the roots below ground. The tree survey drawing plots the location of the tree above ground and through application of the calculation provided in section 5.5.2 of BS 5837:2012; the extent of root protection area has been plotted on the Tree constraints drawing.

The root protection area represents a potential constraint to the development which may be modified in pattern, although not overall area, by existing site conditions such as structures, soil types and drainage, and an appreciation of the nature of particular tree species and root morphology.

Protection is afforded to the tree by defining a Root Protection Area (RPA) within which no development activity should take place. The size of the RPA is defined in the British Standard and relates to trunk diameter plotted in a circle centred on the base of the stem. The RPA is normally the minimum position for protective fencing.

Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

Activity within the RPA must be agreed by the Local Planning Authority (LPA) before commencing. Where there is an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the trees. (see section 7 in BS5837 (2012)). If operations within the RPA are proposed, it must be possible for the project arboriculturalist to demonstrate that trees can remain viable and that the area lost to encroachment can be compensated for elsewhere within the RPA. If encroachment is to take place, a series of mitigation measures to improve the soil environment must be implemented to promote further rooting structures.

Where new permanent hard surface including paving or a slab for a minor structure (e.g. shed base) is to be formed within the RPA, it should bear on existing ground level, and should not exceed an area greater than 20% of the existing un-surfaced ground.

Where the LPA agrees to activity taking place within the RPA then it is likely that special measures will be required, such as a 'no dig' construction method for drives.

To give the best chance of continued good health of the retained trees, it will be essential to prevent root severance or compaction of the soil in the Root Protection Area. To achieve this, a stout fence should be erected at the position shown on the plan (or if this is not indicated, at the limit of the Root Protection Area). This should be done before any site materials or machinery are brought onto site, and should comprise a scaffold frame with steel mesh panels securely attached (eg Heras). Mesh is preferred to boarding as it can be seen through and should be re-useable. Use of rubber or concrete feet instead of a frame is not acceptable as these can easily be moved. Once in place, the fence must be regarded as sacrosanct with no storage of materials/spoil or access by machinery within the protected area.

All-weather notices should be fixed to the barrier reading “Root Protection Area – No Access”.

Where temporary access within the Root Protection Area is agreed, the fence may need to be realigned and the ground surface protected. For vehicular access this protection will need to be specifically detailed and agreed.

Site operations such as deliveries, site machines, crane jibs etc. should be organised to avoid damaging the trunk or crown of trees. Where this conflict is unavoidable then facilitation pruning should be carried out in advance, rather than after damage has occurred. This may be required to allow demolition operations.

Material which could contaminate the soil e.g. concrete mixing, fuel, vehicle washings etc. should not be discharged within 10m of the stem of any tree, and not on ground beyond sloping down to the tree.

Fires should either not be permitted, or else not lit where flames could extend to within 5m of the foliage, branches or trunk.

No notice boards, cables, nails or other items should be attached to any part of the tree.

## **Appendix 4**

## Guidance Note – Statutory Controls

### WILDLIFE ISSUES AND TIMING OF OPERATIONS

Bats. Under current legislation it is an offence to ‘intentionally or recklessly disturb a bat’ or ‘damage, destroy or block access to the resting place of any bat’. For further details consultation must be made with the Statutory Nature Conservancy Organisation (Natural England, 0300 060 1842 [www.naturalengland.org.uk](http://www.naturalengland.org.uk)). **Where relevant any current ecological surveys for the site will take precedence in this matter.**

Birds. It is also likely to be an offence to kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while it is in use or being built. Therefore work likely to disturb nesting birds should be avoided from late March to August.

All trees requiring work here should be evaluated prior to work starting, and **ideally work should be carried out during August – early October.**

The pruning of some species should avoid specific times. *Prunus* species (eg flowering and fruiting Cherry, Plum, Almond etc) should only be pruned during June – August in order to minimise the risk of infection by Silver Leaf disease. *Acer* (Maples including Sycamore), *Betula* (Birches) and, *Morus* (Mulberry) should not be pruned February – June due to sap bleeding; also *Juglans* (Walnut) from December – June



## Appendix 5

# GLOSSARY OF ARBORICULTURAL TERMS

**Abscission.** The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way

**Abiotic.** Pertaining to non-living agents; e.g. environmental factors

**Absorptive roots.** Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients

**Access facilitation pruning.** One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site

**Adaptive growth.** In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress

**Adaptive roots.** The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading

**Adventitious shoots.** Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'

**Anchorage.** The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree

**Arboricultural Method Statement.** Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained

**Arboriculturist.** Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction

**Architecture.** In a tree, a term describing the pattern of branching of the crown or root system

**Axil.** The place where a bud is borne between a leaf and its parent shoot

**Bacteria.** Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms

**Bark.** A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phloem

**Basidiomycotina (Basidiomycetes).** One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes

**Bolling.** A term sometimes used to describe pollard heads

**Bottle-butt.** A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification

**Bracing.** The use of rods or cables to restrain the movement between parts of a tree

## Branch:

- **Primary.** A first order branch arising from a stem
- **Lateral.** A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches
- **Sub-lateral.** A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs

**Branch bark ridge.** The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem

**Branch-collar.** A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base

**Brown-rot.** A type of wood decay in which cellulose is degraded, while lignin is only modified

**Buckling.** An irreversible deformation of a structure subjected to a bending load

**Buttress zone.** The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

**Cambium.** Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

**Canker.** A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria

**Canopy species.** Tree species that mature to form a closed woodland canopy

**Cleaning out.** The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

**Compartmentalisation.** The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region

**Competent person.** A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

**Compression fork.** An acute angled fork that is mechanically optimised for the growth pressure that two or more adjacent stems exert on each other

**Compression strength.** The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

**Compressive loading.** Mechanical loading which exerts a positive pressure; the opposite to tensile loading

**Condition.** An indication of the physiological condition of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree

**Construction.** Site based operations with the potential to affect existing trees

**Construction exclusion zone.** Area based on the Root Protection Area from which access is prohibited for the duration of the project

**Crown/Canopy.** The main foliage bearing section of the tree

**Crown lifting.** The removal of limbs and small branches to a specified height above ground level

**Crown thinning.** The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure

**Crown reduction/shaping.** A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

**Crown reduction/thinning.** Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

**Deadwood.** Dead branch wood

**Decurrent.** In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

**Defect.** In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment

**Delamination.** The separation of wood layers along their length, visible as longitudinal splitting

**Dieback.** The death of parts of a woody plant, starting at shoot-tips or root-tips

**Disease.** A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

**Distal.** In the direction away from the main body of a tree or subject organism (cf. proximal)

**Dominance.** In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

**Dormant bud.** An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

**Dysfunction.** In woody tissues, the loss of physiological function, especially water conduction, in sapwood

**DBH** (Diameter at Breast Height). Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified

**Deadwood.** Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

**Endophytes.** Micro-organisms that live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

**Engineer-designed hard surfacing.** Hard surfacing constructed within the 'Root protection area' of a tree, which will be designed by a structural or geotechnical engineer in collaboration with an arboriculturist as set out in clause 7.4 of British Standard BS5837:2012. The purpose being to minimise the effects of the construction on the health of the tree.

**Epicormic shoot.** A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

**Excrecence.** Any abnormal outgrowth on the surface of tree or other organism

**Excurrent.** In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

**Fastigate.** Having upright, often clustered branches

**Felling licence.** In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

**Field layer.** Herbs, ferns, grasses and sedges

**Flush-cut.** A pruning cut which removes part of the branch bark ridge and or branch-collar

**Girdling root.** A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue

**Ground layer.** Mosses, ivy, lichens and fungi

**Guying.** A form of artificial support with cables for trees with a temporarily inadequate anchorage

**Habit.** The overall growth characteristics, shape of the tree and branch structure

**Haloling.** Removing or pruning trees from around the crown of another (usually mature or post-mature) tree to prevent it becoming suppressed

**Hazard beam.** An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

**Heartwood/false-heartwood.** The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood

**Heave.** A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a wind-rocked root-plate

**High canopy tree species.** Tree species having potential to contribute to the closed canopy of a mature woodland or forest

**Incipient failure.** In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

**Included bark (ingrown bark).** Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

**Increment borer.** A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

**Infection.** The establishment of a parasitic micro-organism in the tissues of a tree or other organism

**Internode.** The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

**Lever arm.** A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

**Lignin.** The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

**Lions tailing.** A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading

**Loading.** A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure

**Longitudinal.** Along the length (of a stem, root or branch)

**Lopping.** A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

**Mature Heights** (approximate):

- **Low maturing** – less than 8 metres high
- **Moderately high maturing** – 8 – 12 metres high
- **High maturing** – greater than 12 metres high

**Microdrill.** An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

**Minor deadwood.** Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

**Mulch.** Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

**Mycellium.** The body of a fungus, consisting of branched filaments (hyphae)

**Occluding tissues.** A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

**Occlusion.** The process whereby a wound is progressively closed by the formation of new wood and bark around it

**Pathogen.** A micro-organism which causes disease in another organism

**Photosynthesis.** The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

**Phytotoxic.** Toxic to plants

**Pollarding.** The removal of the tree canopy, back to the stem or primary branches, usually to a point just outside that of the previous cutting. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

**Primary branch.** A major branch, generally having a basal diameter greater than 0.25 x stem diameter

**Primary root zone.** The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2012) Trees in Relation to design, demolition and construction

**Priority.** Works may be prioritised, 1. = high, 5. = low

**Probability.** A statistical measure of the likelihood that a particular event might occur

**Proximal.** In the direction towards from the main body of a tree or other living organism (cf. distal)

**Pruning.** The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

**Radial.** In the plane or direction of the radius of a circular object such as a tree stem

**Rams-horn.** In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

**Rays.** Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood

**Reactive Growth/Reaction Wood.** Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

**Removal of deadwood.** Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

**Removal of major deadwood.** The removal of, dead, dying and diseased branchwood above a specified size

**Respacing.** Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees

**Residual wall.** The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

**Rib.** A ridge of wood that has usually developed because of locally increased mechanical loading. Often associated with internal cracking in the wood of the stem, branch or root.

**Ring-barking (girdling).** The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage

**Ripewood.** The older central wood of those tree species in which sapwood gradually ages without being converted to heartwood

**Root-collar.** The transitional area between the stem/s and roots

**Root-collar examination.** Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem

**Root protection area (RPA).** Layout design tool indicating a national 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

**Root zone.** Area of soils containing absorptive roots of the tree/s described. The **Primary** root zone is that which we consider of primary importance to the physiological well-being of the tree

**Sapwood.** Living xylem tissues

**Secondary branch.** A branch, generally having a basal diameter of less than 0.25 x stem diameter

**Selective delignification.** A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

**Service.** Any above- or below-ground structure or apparatus required for utility provision e.g. drainage, gas supplies, ground source heat pumps, CCTV and satellite communications

**Shedding.** In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

**Shrub species.** Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

**Silviculture.** The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values

**Silvicultural thinning.** Removal of selected trees to favour the development of retained specimens to achieve a management objective

**Single-up.** Removal of stems from a multi-stemmed tree with the aim of developing a tree with a single stem.

**Simultaneous white-rot.** A kind of wood decay in which lignin and cellulose are degraded at about the same rate

**Snag.** In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point

**Soft-rot.** A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

**Spores.** Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water

**Sporophore.** The spore bearing structure of fungi

**Sprouts.** Adventitious shoot growth erupting from beneath the bark

**Squirrel damage.** Stripping of the bark from stems or branches by squirrels. This can result in the death of branches or even entire trees

**Stem/s.** Principle above-ground structural component(s) of a tree that supports its branches

**Stress.** In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

**Stress.** In mechanics, the application of a force to an object

**Strain.** In mechanics, the distortion of an object caused by a stress

**Stringy white-rot.** The kind of wood decay produced by selective delignification

**Storm.** A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

**Structural roots.** Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

**Structure.** Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork

**Subsidence.** In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

**Subsidence.** In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

**Taper.** In stems and branches, the degree of change in girth along a given length

**Target canker.** A kind of perennial canker, containing concentric rings of dead occluding tissues

**Targets.** In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

**Topping.** In arboriculture, the removal of the crown of a tree, or of a major proportion of it

**Torsional stress.** Mechanical stress applied by a twisting force

**Translocation.** In plant physiology, the movement of water and dissolved materials through the body of the plant

**Transpiration.** The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells

**Tree Protection Plan.** Scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures

**Tree Risk Assessment.** An assessment and description of the risks and where appropriate the values associated with a tree or trees. The primary risk being considered is that from falling trees. Other risks, such as damage to infrastructure, interruption of service and building subsidence may also be considered

- **Walkover** – A general view of the tree population considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- **Drive-by** – A general view of the tree population from a moving vehicle and considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- **Individual** – the assessment of risks from a single tree considered in the context of the adjacent land-use to identify trees that present significantly elevated risks

**Understorey.** This layer consists of younger individuals of the dominant trees, together with smaller trees and shrubs which are adapted to grow under lower light conditions

**Understorey tree species.** Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

**Vascular wilt.** A type of plant disease in which water-conducting cells become dysfunctional

**Vessels.** Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

**Veteran tree.** Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem

**Vigour.** The expression of carbohydrate expenditure to growth (in trees)

**Vitality.** A measure of physiological condition. N = within normal range for species and age, R = reduced from the normal range for the species and age, P = poor

**Volunteer trees.** Trees arising from natural colonisation rather than having been planted

**White-rot.** A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

**Wind exposure.** The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

**Wind pressure.** The force exerted by a wind on a particular object

**Windthrow.** The blowing over of a tree at its roots

**Wound dressing.** A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

**Woundwood.** Wood with atypical anatomical features, formed in the vicinity of a wound