Arboricultural Impact Assessment

WC-266.1a

Spen Valley High School, Roberttown Lane, Liversedge WF15 7LX

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Client:	Spen Valley High School
Site address	Spen Valley High School, Roberttown Lane, Liversedge WF15 7LX
Grid reference:	SE 20044 23224
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Executive Summary

Woodsage Consulting Ltd have been instructed by Spen Valley High School to carry out an Arboricultural Impact Assessment at the main campus, which is located at Roberttown Lane, Liversedge WF15 7LX, in relation to the proposed development of the site.

The development proposals include the erection of a new office building, and extensions and alterations to an existing lodge building (School House).

According to information available on the website of Kirklees Council (2024), there are no tree preservation orders (TPOs) within the site, and the site is not located within a conservation area.

The survey identified a total of 14 trees and two groups of trees with the potential to be affected by the proposed development. These include:

- three category A trees of high-quality;
- 10 category B trees and one group of moderate-quality; and,
- one category C tree and one group of low-quality

The development proposals do not require any of the existing trees to be removed or pruned.

The root protection areas (RPAs) of the retained trees are to be suitably protected throughout the development process by temporary tree protection fencing and ground protection.

Providing the recommendations made within this report are followed, the development is considered achievable, with minimal impact in arboricultural terms to the site and surrounding area.

1. Introduction

1.1. Introduction and Scope of Report

1.1.1. Woodsage Consulting Ltd have been instructed by Spen Valley High School to carry out an Arboricultural Impact Assessment at the main campus, which is located at Roberttown Lane, Liversedge WF15 7LX, in relation to the proposed development of the site.

1.1.2. The purpose of this report is to allow the local planning authority (LPA) to assess information regarding trees at the site as part of the planning submission, and to demonstrate to the LPA that appropriate consideration has been given to the subject of trees as part of the development proposals.

1.1.3. In accordance with *BS 5837: 2012 - Trees in Relation to Design, Demolition and Construction: Recommendations* (hereafter referred to as *BS 5837: 2012*), this report sets out to:

- Assess the quality and value of the trees on and immediately adjacent to the site.
- Identify trees for removal and/or retention, in consideration of the development proposals (where feasible, removals will be restricted to the less significant specimens on site).
- Prescribe tree protection measures where necessary, which will ensure the successful retention of the retained trees at the site. In accordance with *BS 5837: 2012*, these measures will be further detailed in an Outline Arboricultural Method Statement (AMS).
- Prescribe preliminary recommendations for mitigation tree planting.

1.1.4. The contents of this report are concerned with arboricultural issues alone; although other disciplines such as engineering and ecology may be referenced, it is important to gain advice from an appropriate expert on these matters.

1.2. Site Details

1.2.1. The site, which is shown in ***Fig. 1.1***, below, is centred on OS Grid Reference SE 20044 23224, and lies within the town of Liversedge, approximately 3 miles west of Dewsbury. The site is accessed north-west off Roberttown Lane.

Figure 1.1: *Aerial imagery showing the approximate boundaries of the site, outlined in red, and study area, highlighted in yellow (Google Earth, 2024).*

1.2.2. The study area is located to the south-east of the site, and comprises an existing lodge building (School House), car parking facilities, and amenity areas.

1.3. Site Topography and Elevation

1.3.1. The study area lies at an altitude ranging between 95 - 105 m above sea-level.

1.3.2. The topography of the study area is undulating; there is a steep embankment to the north-west, which leads onto the school playing fields.

1.4. Desk Based Study and Planning Context

1.4.1. Cranfield (2024) states that the site and surrounding area consists of Soilscape 17; these are acidic, loamy, and clayey soils, that are slowly permeable and seasonally wet. No further detailed soil analysis was carried out as part of the survey.

1.4.2. According to information available on the website of Kirklees Council (2024), there are no tree preservation orders (TPOs) within the site, and the site is not located within a conservation area.

1.5. Development Proposals

1.5.1. The development proposals include the erection of a new office building, and extensions and alterations to an existing lodge building (School House).

1.5.2. The development proposals shown in drawings produced by Paul Matthews Architectural Ltd (Refs: 23/924-5-6/07b, 23/924-5-6/10b, and 23/924-5-6/8c) have been used to inform this report.

2. Methods

2.1. Survey Details

2.1.1. The site survey was carried out on Thursday the 4th of April 2024.

2.1.2. The weather at the time of the survey was fine and dry; the visibility of the trees was not impeded.

2.2. Survey Personnel

2.2.1. The survey was carried out by Jack Delaney. Jack is a Chartered Arboriculturalist (Member of the Institute of Chartered Foresters), and has worked in the arboricultural sector for over 15 years. Jack holds an FdSc in Arboriculture, with distinction, and is a Professional Member of the Arboricultural Association. Jack is also a LANTRA qualified Professional Tree Inspector, and is a trained and registered user of Quantified Tree Risk Assessment (QTRA).

2.3. Survey Methodology

2.3.1. Only substantial trees with a stem diameter of 75 mm or above were included as part of the survey, as is recommended in *BS 5837:2012*.

2.3.2. The trees were inspected from ground level, using the Visual Tree Assessment (VTA, Mattheck and Breloer, 1994). Although notable defects of trees were recorded, the site survey did not constitute a full tree safety assessment. No specialist decay detection equipment was used as part of the survey, though sounding and probing tools were used where necessary.

2.3.3. Tree information was collected in accordance with *BS 5837: 2012*, and includes species, height, diameter at breast height (DBH), crown spread, crown clearance, age class, condition, vitality, and safe useful life expectancy (SULE).

2.3.4. Trees were allocated to one of four categories (U, A, B or C) as defined in ***Tab. 2.1***, below, to reflect amenity value and suitability for retention, in consideration of the development proposals.

Table 2.1: *BS 5837: 2012* cascade chart *(adapted from British Standards, 2012).*

BS 5837: 2012 Category	Definition	Retention	Colour code
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.	Highly desirable	Light green
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years; trees lacking the special quality to merit category A designation.	Desirable	Dark blue
Category C	Trees of low quality with an estimated remaining contribution of at least 10 years, or 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.	Feasible, but should be removed if posing a constraint to development	Grey
Category U	Trees that have serious, irremediable, structural and/or physiological defects, including those that will become unviable after removal of other category U trees.	Unfeasible	Red

2.3.5. Subcategories 1, 2, and 3 were also given to trees, and reflect arboricultural and landscape qualities, and cultural values, respectively.

2.3.6. Tree heights were measured using a clinometer to the 0.5 m; crown spreads were measured to the north, east, south, and west aspects, using a laser measurer to the nearest 0.5 m.

2.3.7. Where access to trees was obstructed or obscured, DBH, height, and crown spread measurements have instead been estimated.

2.3.8. The DBH of trees was measured at 1.5 m above ground level, and rounded to the nearest centimetre. This was then used to calculate the root protection area (RPA) of trees using methods prescribed in *BS 5837:2012*:

- For single stem trees, the RPA was calculated as a circle with a radius 12 times the DBH.
- For trees with 2-5 stems, the combined stem diameter was first calculated using the formula:

$$\sqrt{(\textbf{Stem 1 DBH})^2 + (\textbf{ Stem 2 DBH})^2 + \ldots (\textbf{Stem 5 DBH})^2}$$

- For trees with 6 or more stems, the combined stem diameter was first calculated using the formula:

$$\sqrt{(\mu\, \boldsymbol{DBH})^2 \textbf{ x number of stems}}$$

2.4. Constraints

2.4.1. The survey was constrained by the season in which it took place; certain tree pathogens and/or defects, for example, the fructifications of decay fungi, are only visible at specific times of the year.

2.4.2. A topographical plan of the site was not provided for the purpose of the survey; trees have instead been plotted using a combination of land features, manual measurements, and GPS.

2.4.3. A number of trees at the site are situated within dense areas of understorey vegetation, or had dense epicormic or epiphytic plants established on them, which restricted visual inspection. Whilst these were surveyed insofar as was practicable and all reasonable effort was made during the survey, the accuracy of such data cannot be guaranteed.

3. Survey Results and Observations

3.1. Tree Population Observations and Amenity Value

3.1.1. The survey identified a total of 14 trees and two groups of trees with the potential to be affected by the development proposals.

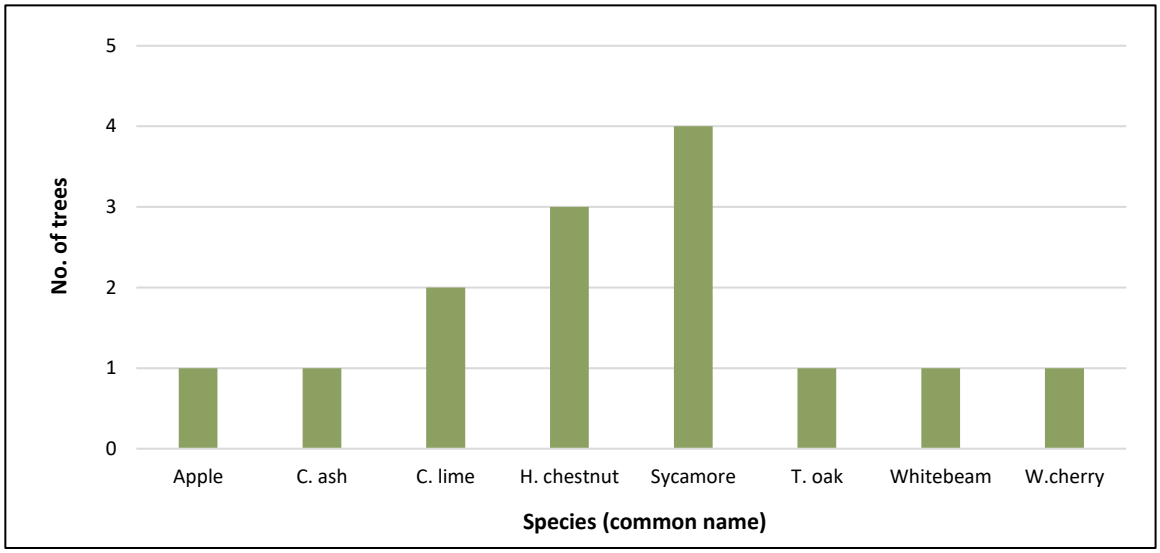

Figure 3.1: *Bar chart showing the tree species and number of trees recorded at the site.*

3.1.2. ***Fig. 3.1***, above demonstrates that the prevalent tree species within the study area are sycamore (*Acer pseudoplatanus*) and horse chestnut (*Aesculus hippocastanum*), which together account for 50% of the individually recorded trees.

3.1.3. The remaining 50% of the individually recorded trees is comprised of common ash (*Fraxinus excelsior*), apple (*Malus* sp.), wild cherry (*Prunus avium*), whitebeam (*Sorbus aria*), Turkey oak (*Quercus cerris*), and common lime (*Tilia* x *europaea*).

3.1.4. Other species which were recorded within groups include common alder (*Alnus glutinosa*), silver birch (*Betula pendula*), common hazel (*Corylus avellana*), common dogwood (*Cornus sanguinea*), common hawthorn (*Crataegus monogyna*), and elder (Sambucus nigra).

3.1.5. The trees within the study area range from young to mature in age-class, and are predominantly situated amongst formally kept areas of mown grass, in and around school footpaths, car parking areas, and playing fields.

3.1.6. The trees immediately to the west of the study area form part of a large area of mixed-deciduous, semi-mature plantation woodland.

3.1.7. The trees located within the study area have moderate to high amenity-value, due to their age, size, and condition, in addition to their prominent location along the school frontage.

3.2. Tree Categorisation

3.2.1. The trees identified during the survey include:

- three category A trees of high-quality;
- 10 category B trees and one group of moderate-quality; and,
- one category C tree and one group of low-quality

3.2.2. There were no category U trees deemed to have SULEs of less than 10 years identified at the site.

3.2.3. A summary of the *BS 5837: 2012* categories of trees at the site is given in ***Tab. 3.1***, below.

Table 3.1: *Summary of BS 5837: 2012 tree categories.*

Category	Description	Tree/Group Numbers	Totals
A	Trees of high-quality, which should be retained throughout the proposed development	T001, T002, T005	3 Trees
B	Trees of moderate-quality, which should where possible be retained throughout the proposed development	T003, T004, T006, T007, T009, T010, T011, T012, T013, T014 G001	10 Trees 1 Group
C	Trees of low-quality, which should not be considered a constraint to the proposed development	T008 G002	1 Tree 1 Group
		Subtotal:	**14 Trees** **2 Groups**

3.2.4. The full results of the survey can be viewed in ***Appendix 1: Tree Survey Schedule***. Images of the trees can be viewed in ***Appendix 2: Images of Trees***. Tree locations, and the above and below ground constraints posed by trees, can be viewed in ***Appendix 4: Tree Constraints Plan***.

4. Impact Assessment

4.1. Tree Removals

4.1.1. The development proposals do not require any of the existing trees to be removed.

4.2. Facilitation Pruning

4.2.1. The development proposals do not require facilitation pruning to any of the trees at the site.

4.2.2. However, it was noted during the survey that branches extending west from T001 encroach upon the roof of the existing lodge building. Therefore, crown lifting is likely to be required in the near future to T001, in order to maintain sufficient distance between tertiary branches and the building. It may make sense for these works to be completed prior to the proposed development.

4.3. Tree Root Protection Areas (RPAs)

4.3.1. The RPAs of the T011 and T012 will be encroached onto by the proposed office building, by approximately 2% and less than 1% of the total RPAs, respectively.

4.3.2. The proportions of affected RPA in the cases of T011 and T012 are considered negligible. The likelihood of tree roots being impacted are also further reduced due to sudden level changes – in the region of 2-3 m - which occur between T011 and T012, and the proposed office building.

4.3.3. A 2 m mesh fence is proposed which will pass through the RPAs of T001, T006, T007, T008, and G001. Although the proposed mesh fence is considered a minor structure in respect of impact to roots, installation within tree RPAs should adhere to the guidelines provided in ***Section 8*** of the ***Outline AMS*** in ***Appendix 3***.

4.3.4. The temporary tree protection fencing and ground protection - detailed in ***Section 4*** and ***6*** of the ***Outline AMS*** in ***Appendix 3***, and illustrated in the ***Tree Protection Plans*** in ***Appendices 6*** and ***7*** - will ensure that the RPAs of the retained trees are suitably protected from development activities.

4.4. Shade Analysis

4.4.1. Although the proposed office building will endure shading from T009, T010, T011, and T012, due to the intended use of the structure – which will be for school admin staff, staff training, meetings, and conferences - this may potentially be of benefit. Shading by trees will reduce glare issues on screens and monitors, and will also help to regulate ambient temperatures during the warmer months.

4.4.2. A Shade Analysis Plan can be viewed in ***Appendix 5***.

4.5. Services and Other Considerations

4.5.1. At time of writing, details of proposed service routes have not been provided by the client.

4.5.2. It is assumed that the services for the proposed lodge building extension will use those that already exist, and that those for the proposed office building will be routed from the east – where there are no trees to be impacted.

4.5.3. If there are any alterations to service routes which conflict with tree RPAs however, these should first be reported to the Project Arboriculturalist, so that appropriate measures may be taken.

5. Recommendations

5.1. Tree Protection

5.1.1. Construction, and any other works involving excavations, can cause irreversible damage to trees - particularly those which have reached maturity - which are far less capable of adapting to alterations in their surrounding environment. Whilst above-ground injuries are usually obvious, root damage is often concealed, though can have equally devastating impacts to tree health.

5.1.2. Direct root damage includes root severance, which can be caused by digging of trenches and ditches, and the stripping of topsoil. Indirect damage may involve the raising of soil levels, alterations in drainage patterns, the laying of impervious surfaces, and soil compaction.

5.1.3. Compaction of soils is regarded as the most common cause of death or damage to retained trees on development sites. Soil compaction reduces soil pore space, which in turn reduces soil air, the passage of water and available nutrients. These anaerobic conditions prevent root growth and the proliferation of soil microbes essential to tree health. Symptoms in trees may include crown die-back, sparse and small foliage, and poor extension growth; however, these are usually not evident until well after the occurrence of compaction. Even one pass of a vehicle in wet conditions can cause irreparable soil compaction.

5.1.4. To avoid both direct and indirect damage to the roots of the retained trees, temporary tree protection fencing and ground protection should be installed throughout the development, and in the following stages:

1. The tree protection and ground protection - shown in ***Tree Protection Plan (1)*** - should be installed prior to development works commencing.
2. Once construction of the proposed extension and office building have been completed - to facilitate installation of the proposed 2 m mesh fencing - the ground protection should be removed and the tree protection fencing repositioned, to the locations shown in ***Tree Protection Plan (2)***.

5.1.5. It is recommended that development works follow the ***Outline AMS*** provided in ***Appendix 3***. This includes the specifications for tree protection fencing, ground protection, and other protective measures to be adhered to throughout the development.

5.1.6. As aspects of the development may be subject to change, the ***Outline AMS*** should be reviewed by the Project Arboriculturalist prior to the commencement of development works.

5.2. Mitigation

5.2.1. Since the development proposals do not require any of the existing trees to be removed, mitigation tree planting has not been recommended.

5.3. Additional Information

5.3.1. All visual observations and recommendations specified within this document relate to the condition of the trees and surroundings at the time of the survey. As such, any subsequent changes to landform in the proximity of the trees could invalidate the advice given.

5.3.2. Trees are dynamic living organisms, and their condition can change rapidly; the information given in this report is therefore valid for a period of 18 months. This period may be reduced if significant changes occur to the trees, or the ground conditions, which surround them.

References

British Standards (2012). *BS 5837: 2012 - Trees in Relation to Design, Demolition and Construction: Recommendations.* London: British Standards Institute.

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Appendices

Appendix 1: Tree Survey Schedule

Table Key			
Tree/Group Ref: Reference numbers, as illustrated in **Appendix *4: Tree Constraints Plan***			**DBH:** Diameter at breast height (1.5 m), in millimetres
Height (Ht.): Overall height of tree, measured to nearest metre			**SULE:** Safe useful estimated life expectancy of tree, in years
Crown Spread (CS): Radius of crown to N, E, S, and W aspects, measured to nearest metre			**Crown Clearance (CC):** Clearance from ground level of lowest branch, measured to nearest metre
Structural Condition (SC): An assessment of structural condition. **G** = Good; **F** = Fair; **D** = Decaying; **C** = Collapsing; **PD** = Physical Defect			**Physiological Condition (PC)**: An assessment of vitality and vigour **F** = Fair; **P** = Poor; **D** = Dead
Species: Common (and *binomial name*)			**#:** Denotes estimated value
Age	**Young (Y):** Newly planted or self-seeded tree	**Early-mature (EM):** Trees in second-third of life expectancy for species type	**Over-mature (OM):** Mature trees which have entered stages of natural decline
	Semi-mature (SM): Trees in within first-third of life expectancy for species type	**Mature (M):** Trees in final-third of life expectancy for species type	**Veteran (V):** Trees of any age, which display ancient characteristics
***BS 5837: 2012* Categories**	**Category A:** Trees of high-quality with an estimated remaining life expectancy of at least 40 years, and that are particularly good examples of their species type		**Category C:** Unremarkable trees of low-quality offering limited arboricultural merit and/or of such impaired condition that they do not warrant in higher categorisation
	Category B: Trees of moderate-quality with an estimated remaining life expectancy of at least 20 years, though lacking the necessary qualities to warrant Category A designation		**Category U:** Trees which display serious, irremediable, structural and/or physiological defects

Individual Trees

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	PC	SC	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T001	Common lime *(Tilia x europaea)*	M	80+	21	830	7	7.5	6.5	7.5	3.5	No obvious significant defects. Growing in proximity to boundary wall. Epicormic shoots on main stem to 7 m, encroach upon roof of existing lodge house building.	G	G	A1	No works recommended.
T002	Horse chestnut *(Aesculus hippocastanum)*	M	40-80	20	870	7	6	7.5	7	2	No obvious significant defects. Epicormic on main stem to 5 m.	G	G	A1	No works recommended
T003	Whitebeam *(Sorbus aria)*	SM	20-40	9	280	4	2.5	4	5	2	Suppressed by adjacent trees with asymmetrical crown spread in result.	G	F	B1	No works recommended
T004	Apple *(Malus* sp.)	SM	40-80	7	210	3.5	4	3.5	4.5	1	No obvious significant defects.	G	G	B1	No works recommended

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	PC	SC	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T005	Turkey oak *(Quercus cerris)*	M	80+	19	1020	11	10	8.5	12	4	Bifurcates at 2-3 m into multiple co-dominant stems; unions appear structurally optimised. Branch cavity at 6 m in south aspect of crown.	G	G	A1	No works recommended
T006	Wild cherry *(Prunus avium)*	SM	20-40	15	310	4	2.5	1.5	6	3.5	Asymmetrical crown spread due to proximity with adjacent trees. Minor deadwood < 100 mm in diameter scattered throughout crown	F	F	B1	No works recommended
T007	Common ash *(Fraxinus excelsior)*	SM	40-80	15	360	4.5	2.5	5	6	2.5	Asymmetrical crown spread due to proximity with adjacent trees. Minor deadwood < 100 mm in diameter scattered throughout crown. Ivy on main stem to 3 m.	F	F	B1	No works recommended
T008	Horse chestnut *(Aesculus hippocastanum)*	Y	20-40	11	200	2	2	2	3	2	Dense ivy established on main stem and structural branches, obscuring tree features and potential defects. Limited arboricultural merit and lacking qualities for higher BS 5837 categorisation.	F	F	C1	No works recommended
T009	Horse chestnut *(Aesculus hippocastanum)*	M	20-40	16	780	4	6	8	8	4	Several oozing lesions on main stem, and longitudinal splits in cambium, possibly indicating bleeding canker (Pseudomonas syringae pv. *aesculi*) infection, though vitality remains fair. Asymmetrical crown spread due to proximity with adjacent trees. Approx. 3 m below levels of proposed structure.	F	F	B1	No works recommended
T010	Sycamore *(Acer pseudoplatanus)*	EM	40-80	18	460	3	7	7	4	4.5	Asymmetrical crown spread due to proximity with adjacent trees. Approx. 3 m below levels of proposed structure.	G	F	B1	No works recommended

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	PC	SC	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T011	Sycamore *(Acer pseudoplatanus)*	M	20-40	15	670	4	6	5	5.5	7.5	Historically reduced at circa 13 m. Approx. 3 m below levels of proposed structure.	F	F	B1	No works recommended.
T012	Sycamore *(Acer pseudoplatanus)*	M	20-40	14	700	4.5	5.5	5	6.5	6.5	Historically topped at circa 13 m. Approx. 3 m below levels of proposed structure.	F	F	B1	No works recommended.
T013	Sycamore *(Acer pseudoplatanus)*	EM	80+	17	440	4	6.5	3.5	4.5	6	No obvious significant defects.	G	G	B1	No works recommended
T014	Common lime *(Tilia x europaea)*	EM	80+	18	520	5	5	5.5	4.5	2	Dense epicormic around base of main stem, obscuring tree features and potential defects, though upper portion of crown appears of good vitality and vigour.	G	G	B1	No works recommended

Groups of Trees

Group Ref:	Species Composition	Age	SULE	Av. Ht.	Av. DBH	Approx. No. of Stems	CC	Comments	V	SC	*BS 5837:2012* Category	Recommendations
G001	Goat willow *(Salix caprea)* Sycamore *(Acer pseudoplatanus)* Wild cherry *(Prunus avium)* Whitebeam *(Sorbus aria)* Elder *(Sambucus nigra)* Common hawthorn *(Crataegus monogyna)*	SM EM	40-80	16	440	12	2	Linear group of trees situated on adjacent property. Dense ivy established throughout group, obscuring tree features and potential defects.	F	F	B1	No works recommended

Group Ref:	Species Composition	Age	SULE	Av. Ht.	Av. DBH	Approx. No. of Stems	CC	Comments	V	SC	*BS 5837*:2012 Category	Recommendations
G002	Silver birch *(Betula pendula)* Common dogwood *(Cornus sanguinea)* Hazel *(Corylus avellana)* Wild cherry *(Prunus avium)* Common ash *(Fraxinus excelsior)* Horse chestnut *(Aesculus hippocastanum)* Common alder *(Alnus glutinosa)*	Y SM	20-40	17	460	15	2	Woodland plantation. Multiple specimens display features typical of woodland trees, including acute primary and secondary unions, asymmetrical forms, and/or leaning stems.	F	F	C1	No works recommended

Appendix 2: Images of Trees

Plate 1: *T001*

Plate 2: *T002*

Plate 3: *T003*

Plate 4: *T004*

Plate 5: *T005*

Plate 6: *T006, T007, & T008 (right to left)*

Plate 7: *T009, T010, & T011 (right to left)*

Plate 8: *T009, T010, & T011 (left to right)*

Plate 9: *T012*

Plate 10: *T013 (foreground, left) & T014 (foreground, right)*

Plate 11: *G001*

Plate 12: *G002*

Appendix 3: Outline Arboricultural Method Statement (AMS)

A3.1 Introduction

A3.1.1 Woodsage Consulting Ltd have been instructed by Spen Valley High School to produce an Outline AMS in relation to a proposed development of the land at the main campus, which is located at Spen Valley High School, Roberttown Lane, Liversedge WF15 7LX.

A3.1.2 The development proposals include the erection of a new office building, and extensions and alterations to an existing lodge building (School House).

A3.1.3 This Outline AMS should be read in conjunction with the Arboricultural Impact Assessment (Ref: WC-266.1a).

A3.2 Timing of Works

A3.2.1 It is not the Project Arboriculturist's role to determine the timing and implementation of works on site; however, an input into the process can avoid issues once work is underway. The phasing of works should be carried out in accordance with ***Tab. A3.1***, below.

Table A3.1: *Timing of Works.*

Stage	Works
1	Site induction
2	Install temporary tree protection fencing and ground protection, in the locations shown in the ***Tree Protection Plan (1)***
3	Inspection of tree protection measures by the Project Arboriculturalist
4	Carry out construction works
5	Once construction of the proposed extension and office building have been completed, remove ground protection**,** and reposition tree protection fencing to the locations shown in ***Tree Protection Plan (2)***
6	Install 2 m high mesh fencing
7	Remove tree protection fencing once installation of the fence is completed
8	Final inspection by the Project Arboriculturalist

A3.3 Site Supervision

A3.3.1 Prior to works commencing, it is the responsibility of the main contractor, or assigned agent, to ensure that details regarding tree protection are understood and adhered to by all site personnel.

A3.3.2 During the site induction, the final AMS, and a copy of the ***Tree Protection Plan*** - which can be found in ***Appendix 6*** - should be made available to all contractors attending the site.

A3.4 Tree Protection Fencing

A3.4.1 Tree protection barriers shall be installed prior to the commencement of development works, and should be fit for the purpose of excluding site personnel and machinery. The default specification should be in accordance with *BS 5837: 2012*.

A3.4.2 **Specification:** Barriers shall be a minimum 2 m high, and should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in ***Fig. A3.1*** and ***Fig. A3.2***, on the following page.

A3.4.3 The vertical tubes shall be spaced at a minimum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.

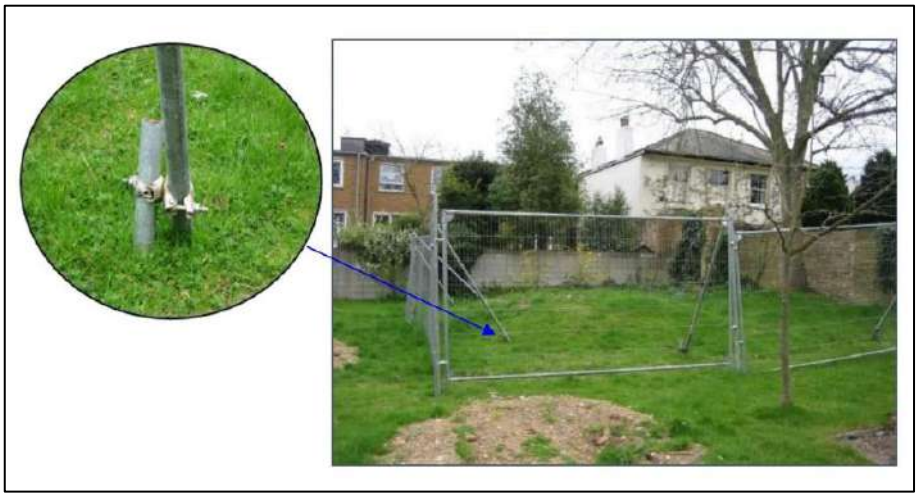

***Figure A3.1**: Example of mesh welded type barriers in-situ.*

A4.4.4 All-weather notices shall be attached to the barriers at 9 m intervals with the words 'TREE PROTECTION ZONE - NO ACCESS' clearly visible.

A4.4.5 The temporary tree protection fencing should be installed in two phases:

1. Prior to development works commencing, in the locations shown in ***Tree Protection Plan (1)***
2. Once construction of the proposed extension and office building have been completed, in the locations shown in ***Tree Protection Plan (2)***, to facilitate installation of the proposed 2 m mesh fencing

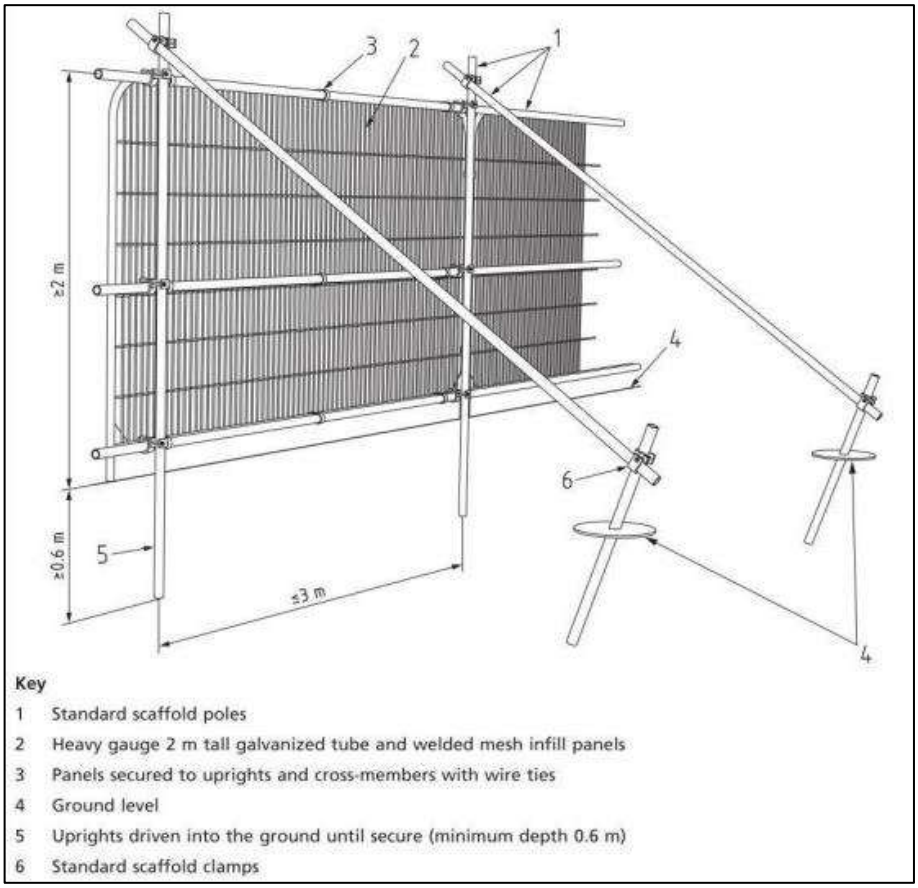

***Figure A3.2**: Temporary 2 m steel protective fencing.*

A4.4.6 The protected areas should be regarded as sacrosanct, and once installed, tree protection fencing should not be removed or altered without prior consultation with the Project Arboriculturist.

A4.4.7 If any breach in the tree protection fencing occurs, it is the Site Manager's responsibility to report this to the Project Arboriculturalist, so that appropriate measures may be taken. Any breach which results in death or damage to the trees could result in a criminal offence being committed.

A3.5 Additional Details

A3.5.1 No materials hazardous to tree health, such as oil, bitumen or cement should be stored within the protective fencing. Where possible this area should be extended to 10 m away from the fencing.

A3.5.2 Where there is a risk of polluted water runoff into root protection areas (RPAs), heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination. No fires should be lit within 20 m of the protective fencing.

A3.5.3 As the majority of tree roots are typically found within the first 100 cm of ground level - particular attention should also be paid to existing levels - which should be observed and maintained within tree RPAs.

A3.5.4 Any unavoidable excavations into the soil within RPAs should be carried out by use of hand-operated tools or compressed air soil displacement, and only under prior approval of the Project Arboriculturalist.

A3.6 Ground Protection

A3.6.1 Due to site constraints, to allow for suitable working space, the temporary tree protection fencing adjacent to T001, T009, T010, T011, and T012 will be setback from the default *BS 5837:2012* positioning; as a result, soft-landscape within RPAs will be exposed to development activities.

***Figure A3.3**: Examples of ground protection panels.*

A3.6.2 Temporary ground protection should be installed throughout the exposed RPAs of T001, T009, T010, T011, and T012 – as shown in ***Tree Protection Plan (1)*** – and shall remain in place until construction phase has been completed.

A3.6.3 The temporary ground protection should consist of inter-linked boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip) which are laid onto a geotextile membrane, as illustrated in ***Fig. A3.3***, above.

A3.6.4 Any plant or machinery operating within the RPAs of T001, T009, T010, T011, and T012 must ensure it does so upon the ground protection at all times.

A3.7 Services

A3.7.1 All services and/or alterations to existing services shall be installed outside of the RPAs of the retained trees. If there are any areas of conflict, these should first be reported to the Project Arboriculturalist, so that appropriate measures may be taken.

A3.8 Installation Method Statement for Permanent Mesh Fencing within Tree RPAs

A3.8.1 A proposed 2 m mesh fence will pass through the RPAs of T001, T006, T007, T008, and G001.

A3.8.2 Installation of permanent fencing within tree RPAs should adhere to the following guidelines:

1. No part of any fencing is to be attached to the adjacent trees.
2. The post dimensions are to be a maximum of 100 mm x 100 mm.
3. Holes are to be hand-dug to a depth of 600 mm.
4. If roots are encountered that are less than 25 mm dimeter, these may be pruned back, by making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps, or which are greater than 25 mm diameter, should only be severed following consultation with the Project Arboriculturalist. Any roots which are temporarily exposed should be covered with sharp sand.
5. Posts will be set in concrete and in holes lined with polythene to minimise leaching.
6. Concrete will be mixed outside of tree RPAs and transported to site.

A3.9 Responsibility and Site Management

A3.9.1 It is the responsibility of the main contractor or assigned agent to ensure that details regarding tree protection are understood and followed by all site personnel.

A3.9.2 It is recommended that inspections by the Project Arboriculturalist are undertaken at the following stages:

1. Once the tree protection fencing and ground protection has been installed – in the locations shown in ***Tree Protection Plan (1)*** – and prior to development works commencing.
2. Upon completion of the development works.

A3.9.3 After each inspection, a letter should be submitted by the Project Arboriculturalist to the LPA Arboricultural Officer, to confirm if the method statement has been followed correctly, and if trees have not been adversely affected by construction works.

A3.10 Project Arboriculturalist Contact Details

Mr Jack Delaney
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Unit 2, Hey End Farm,
Shield Hall Lane,
Luddendenfoot,
West Yorkshire HX2 6JN

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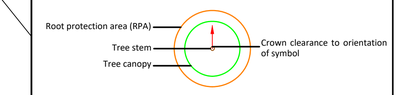
Appendix 4:
Tree Constraints Plan

Project:	Spen Valley High School, Liversedge WF15 7LX
Drawn by:	Jack Delaney
Date:	11th April 2024
Scale:	1:500 @ A1
Drawing Number:	WC-266.1a.4

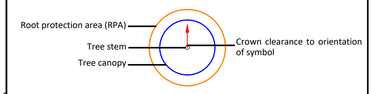
Do not scale off this drawing - to be reproduced in colour only

Map Key:

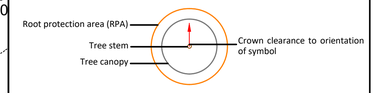
Category A trees of high-quality



Category B trees/groups of moderate-quality



Category C trees/groups of low-quality



Application boundary

Site Location 1:2500

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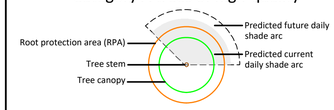
Appendix 5:
Shade Analysis Plan

Project:	Spen Valley High School, Liversedge WF15 7LX
Drawn by:	Jack Delaney
Date:	11th April 2024
Scale:	1:250 @ A1
Drawing Number:	WC-266.1a.5

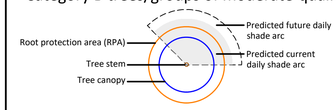
Do not scale off this drawing - to be reproduced in colour only

Map Key:

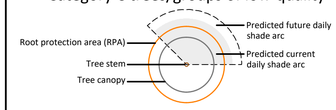
Category A trees of high-quality



Category B trees/groups of moderate-quality



Category C trees/groups of low-quality



Application boundary

Denotes line of 2m high mesh fencing

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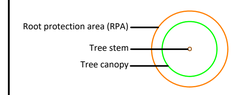
Appendix 6:
Tree Protection Plan (1)

Project:	Spen Valley High School, Liversedge WF15 7LX
Drawn by:	Jack Delaney
Date:	11th April 2024
Scale:	1:250 @ A1
Drawing Number:	WC-266.1a.6

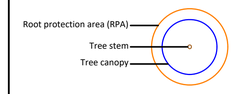
Do not scale off this drawing - to be reproduced in colour only

Map Key:

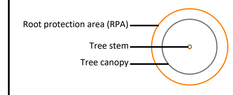
Category A trees of high-quality



Category B trees/groups of moderate-quality



Category C trees/groups of low-quality



Application boundary

Temporary tree protection fencing, to *BS 5837: 2012* specification, as detailed in the ***Outline Arboricultural Method Statement (AMS)***

Temporary ground protection, to *BS 5837: 2012* specification, as detailed in the ***Outline AMS***

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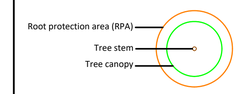
Appendix 7:
Tree Protection Plan (2)

Project:	Spen Valley High School, Liversedge WF15 7LX
Drawn by:	Jack Delaney
Date:	11th April 2024
Scale:	1:250 @ A1
Drawing Number:	WC-266.1a.7

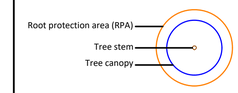
Do not scale off this drawing - to be reproduced in colour only

Map Key:

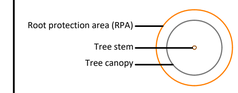
Category A trees of high-quality



Category B trees/groups of moderate-quality



Category C trees/groups of low-quality



	Application boundary
	Denotes line of 2m high mesh fencing
	Temporary tree protection fencing, to *BS 5837: 2012* specification, as detailed in the ***Outline Arboricultural Method Statement (AMS)***

T014 Common lime
T013 Sycamore
T012 Sycamore
T011 Sycamore
T010 Sycamore
T009 Horse chestnut
G002
T005
Turkey oak
T004 Apple
2m double gates
T003
Whitebeam
1m wide
pedestrian gate
T002
Horse chestnut
T001
Common lime
T006 Wild cherry
T007 Ash
T008
Horse chestnut
G001
30

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