

THE HIGHFIELD SCHOOL, LETCHWORTH

Arboricultural Impact Assessment



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ARBORICULTURAL IMPACT ASSESSMENT

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ARBORICULTURAL IMPACT ASSESSMENT

1 INTRODUCTION

- 1.1 This Arboricultural Impact Assessment (AIA) has been prepared by RPS on behalf of Surfacing Standards Limited in respect of the proposed Artificial Grass Pitch (AGP) development at The Highfield School in Letchworth (hereafter referred to as 'the site').
- 1.2 A tree survey of the application area was carried out by RPS in October 2024 in accordance with the requirements of BS5837:2012. The details recorded during the survey can be seen in the Tree Schedule at Appendix B and displayed spatially on the Tree Constraints Plan at Appendix C.
- 1.3 This report has also been prepared in accordance with the requirements set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'(BS5837:2012).¹
- 1.4 The purpose of this report is to:
- Provide an assessment of the quality of the surveyed trees with reference to the categories and sub-categories listed within Table 1 - BS5837:2012.
 - Assess and quantify the arboricultural impact of the proposed development within the survey area, based on the proposed development layout.
 - Provide additional arboricultural information and advice in relation to the protection of trees throughout the development of the site.
 - Provide a Tree Protection Plan to detail the proposed protective measures to be taken in respect of the trees during development of the site.
- 1.5 The Tree Protection Plan included in Appendix D identifies the following:
- Trees to be retained
 - Trees to be removed
 - Alignment and design of protective fencing
 - Root Protection Area (RPA) of trees
- 1.6 The Tree Protection Plan shall be made available to all relevant site operatives prior to and throughout the construction process, so they understand the scope and importance of the tree protection measures.
- 1.7 To minimise the potential for harm to occur to retained trees, all works shall be carried out in accordance with the tree protection measures and construction techniques detailed within this report. In particular, the establishment of a Construction Exclusion Zone (CEZ) by erection of Tree Protection Fencing, will minimise the potential for harm to occur to retained trees.

¹ British Standards Institute. British Standard (BS5837) Trees in Relation to Design, Demolition and Construction - Recommendations. 2012.

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2 SITE LOCATION

- 2.1 The survey site is located at The Highfield School, Highfield, Letchworth, Hertfordshire, SG6 3QA.
- 2.2 The land is roughly centred on OS grid reference TL 21016 31386. The Local Planning Authority (LPA) governing this site is North Hertfordshire District Council.
- 2.3 The Soilscape of the area in which the survey site is situated typically consists of Lime-rich loamy and clayey soils with impeded drainage².
- 2.4 The site is comprised of a school field within an educational complex. The area is relatively flat with several mature trees surrounding the site boundary.

Tree Preservation Orders & Conservation Areas

- 2.5 Trees covered by a Tree Preservation Order are protected under the Town and Country Planning Act 1990 (Trees Regulation 2012). The local authority must be consulted, and permission sought for any works that may affect them.
- 2.6 A Tree Preservation Order (TPO) is an order made by a LPA to protect specific trees, groups of trees or woodlands in the interests of amenity. An Order requires written consent from the LPA for any of the following actions to be carried out to a protected tree:
- cutting down
 - topping
 - lopping
 - uprooting
 - wilful damage
 - wilful destruction
- 2.7 If consent is given, it can be subject to conditions which have to be followed. Cutting roots is also a prohibited activity and requires the authority's consent.
- 2.8 If a tree is not covered by a TPO but is situated within a Conservation Area, similar restrictions apply. Any works required to a tree situated within a Conservation Area must be notified to the LPA, using a 'section 211 notice', 6 weeks before carrying out the work, unless an exception applies.
- 2.9 A call received from North Hertfordshire District Council (received at 07.07.25) revealed that there are no Tree Preservation Orders or Conservation Areas affecting trees onsite.

² <https://www.landis.org.uk/soilscales/>

Ancient Woodland and Veteran Trees

- 2.10 In accordance with the National Planning Policy Framework (NPPF) (December 2024) section 193(c):
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁷⁰ and a suitable compensation strategy exists ³*
- 2.11 Forestry England and Natural England⁴ published standing advice for ancient woodlands and ancient and veteran trees in the context of developments, which is a material consideration for LPA. This guidance advises on the minimum RPA calculations which must be used, with minimum distances identified as:
- Fifteen metres between any development and ancient woodland.
 - Fifteen times the diameter of its stem or 5m from the edge of its canopy, whichever is greater, around any ancient or veteran tree.
- 2.12 The use of semi-natural habitats for buffer zones as a means of protection is encouraged to contribute to the wider ecological network and enhance the green infrastructure area. Further guidance is provided on the compensation measures which may be applied should adverse impacts arise.
- 2.13 A desktop investigation using the Magic Map Application⁵ confirmed that there are no designated Ancient Woodland on / adjacent to the site.

³ <https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf>

⁴ <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

⁵ <https://magic.defra.gov.uk/MagicMap.aspx>

3 SURVEY METHODOLOGY

- 3.1 The tree survey was completed by RPS Associate Director Thomas Flood, the report was written by RPS Arboriculturist Charlie Moore of RPS and authorised by RPS Director David Cox.
- 3.2 The tree survey was carried out in accordance with the requirements set out in BS 5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations". The survey does not constitute a full arboricultural condition assessment involving the detailed inspection of trees in relation to their structural condition, decay, and any other physical and pathogenic defects.
- 3.3 During the survey, all information was digitally captured on site, using a tablet running Axciscap 4.07 software. This is a program specifically designed for arboricultural surveying, which allows trees to be located directly onto a digital copy of a site's topographical survey.
- 3.4 The tree survey involved a visual inspection from the ground of individual specimens and where deemed appropriate, trees have been assessed as groups of trees, woodland and hedgerows. Characteristics such as their amenity value, condition and dimensions have been recorded. A full breakdown of tree characteristics recorded during the survey can be seen in Appendix A.
- 3.5 Each arboricultural feature is marked on the Tree Constraints Plan at Appendix C with an identification number (T1, G1, H1, W1 etc), which can be seen at and cross referenced with the Tree Schedule at Appendix B. The Tree Schedule shows a breakdown of the raw data collected during the site visit.
- 3.6 The locations of the trees are based upon a topographic survey (drawing no. 2313/01) produced by Stuart Bailey Land Surveying in March 2024.
- 3.7 Measurements for tree height, minimum crown clearance and crown spread were rounded to the nearest 0.5m. Stem diameter measurements were recorded to the nearest 10 mm using a diameter tape where access to the stem was possible.
- 3.8 Trees retention categories were assigned by the following criteria and have been differentiated on the Tree Plans using the following colours:
- Category A:** Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B:** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C:** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U:** Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. However, it may be possible to retain some trees assigned to retention Category U, where public access to them is limited, as they may exhibit conservation value providing unique wildlife habitat.
- 3.9 Categories A, B and C have further sub-categories with regards to the reasons for tree retention:
- 1) Mainly arboricultural qualities.
 - 2) Mainly landscape qualities.
 - 3) Mainly cultural values, including conservation.

Root Protection Areas (RPA)

- 3.10 The protection of the roots and soil structure within the RPA should be treated as a priority. To avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated in accordance with section 4.6 of BS5837:2012. They have been displayed on the Tree Plans with a magenta circle and may be modified in shape where deemed necessary by obvious root barriers observed on site (although the total area remains the same).
- 3.11 This methodology is recommended as the minimum area around a tree that contains sufficient roots and rooting volume to maintain viable tree vigour and structure. Where groups of trees, woodlands and hedgerows have been assessed, the RPA has been shown based on the average sized tree stem in each arboricultural feature, and so may fall short/exceed the RPA required for some of the individual specimens within the feature.

Limitations

- 3.12 The findings of this survey are not valid following adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events.
- 3.13 Trees are dynamic structures which are constantly growing and changing. Whilst reasonable effort has been made to identify defects which may compromise the trees longevity, no guarantee can be given as to the safety or otherwise of any individual tree or arboricultural feature. Due to the unpredictable laws and forces of nature, no tree can ever be deemed as safe. Natural failure of intact trees does occur, and changing climatic conditions can cause damage to even apparently healthy trees.
- 3.14 Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. If trees have been recorded beyond the extent of the site, all dimensions have been estimated (unless stated otherwise) and the assessment of these trees has occurred from land within the Client's ownership and publicly accessible land only (unless formal access has been arranged to these additional areas).
- 3.15 Trees under 75mm diameter and woody vegetation were not assessed for their potential impact upon future construction issues such as foundation designs (re: NHBC chapter 4.2)⁶. Whilst this report may assist in assessing likely future impacts, it should not be classed as a comprehensive vegetation survey in relation to impact upon future designs.
- 3.16 The desktop study confirming statutory and non-statutory constraints uses publicly accessible third-party information, meaning the results of this exercise are only as accurate as the information available at the time of the assessment.
- 3.17 No Tree Preservation Orders or Conservation Areas were identified. Provisional Tree Preservation Orders (TPOs) may be made whenever a LPA deems it appropriate, with only those persons interested in the land served with a copy of the Order. A further search for the presence of TPOs should be carried out prior to commencement of any tree works or removals specified within this report.
- 3.18 Where possible, the location of the arboricultural features identified at the site have been plotted using a topographical survey, which has been supplied by the client. If no topographical survey

⁶ NHBC. 'Chapter 4.2- Building Near Trees'. NHBC Standards 2016. 2016.

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data has been provided, arboricultural feature locations have been plotted using GPS, aerial photography and/or OS maps, which have a reduced accuracy.

4 APPRAISAL AND RECOMMENDATIONS

Summary of Tree Survey

- 4.1 During the survey, surveyed features were plotted in one of three ways:
- Singular: All individual trees and some smaller groups are plotted by marking the locations of each tree one by one giving an accurate account of tree locations and numbers.
 - By area: Larger groups and woodlands are generally plotted by area (m²). For features plotted this way, the approximate number of trees in each feature has been estimated using the average 'centres' or spacing of trees.
 - By Length: Linear groups and hedges are generally plotted by length (m). For features plotted this way, the approximate number of trees in each feature has been estimated using the average 'centres' or spacing of trees.
- 4.2 During the survey 12 trees were surveyed as individuals. The survey also recorded 1 Groups and 6 areas of hedge/shrub/scrub. For details on all the information recorded during the site visit, please refer to the Tree Schedule in Appendix B.
- 4.3 Of the 12 individual trees recorded, 5 were Category A (High quality), 3 were Category B (Moderate quality) and 4 were Category C (Low quality). The 1 group recorded was considered to be Category B.

Planning considerations

- 4.4 Trees can offer many benefits, including the provision of visual amenity, softening or complementing the effect of the built environment, adding maturity to new developments and by making places more comfortable in tangible ways e.g. contributing screening and shade, reducing wind speed and turbulence, intercepting snow and rainfall, and reducing glare.
- 4.5 New tree planting opportunities should be considered as part of any potential redevelopment; this will help to broaden the age diversity of the tree cover within the area. Sufficient space should be provided for species with significant stature to grow out into maturity.
- 4.6 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is still a material consideration that is considered when dealing with planning applications.

Design and Site Layout Considerations

- 4.7 During any future site planning exercises, the current and future growth potential of the trees should be considered.
- 4.8 The Root Protection Area (RPA) should become an exclusion zone during construction works and for any development. It should be fenced-off and protected in accordance with BS5837:2012. The canopy is likewise susceptible to damage during construction work and requires similar protection.
- 4.9 No activities that result in excavations, changes in level or soil compaction should take place within the RPA of any retained trees, especially older mature trees. This would include the

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storage of materials, any construction work, trafficking by vehicles or even excessive trafficking by pedestrians.

- 4.10 If some form of construction must take place within the RPA, then certain measures need to be adopted to avoid disturbance or damage to the roots and to maintain moisture infiltration and gaseous diffusion into the soil. It is recommended that these are detailed by a separate document called an Arboricultural Method Statement (AMS).

Tree Risk Management

- 4.11 It is recommended that a programme of periodic arboricultural assessments be undertaken to regularly assess the full health and safety of all trees both in full leaf and bare stemmed. The assessments should prioritise areas with high footfall and/or presence of a constant target and accord with arboricultural advice, taking account of relevant factors (where known) that affect safety such as the age class, condition, size and species of the trees.

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Introduction

- 5.1 Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.
- 5.2 Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed development and the retained trees to identify what precautions are necessary, proportionate and appropriate.
- 5.3 Development has the potential to impact upon the above ground and below ground parts of trees. Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible, the impact from other aspects of work common on development sites, which can have a significant effect upon the continued health of trees, are not always immediately evident.
- 5.4 Damage that is not immediately evident, but which can cause long term harm to retained trees, includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.
- 5.5 In general, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided. The establishment of a **Construction Exclusion Zone (CEZ)** by erection of Tree Protection Fencing will minimise the potential for harm to occur to retained trees.
- 5.6 The retention and protection of significant trees and vegetation will assist in assimilating the proposed development into the wider landscape and offer long term tree cover.
- 5.7 Furthermore, redevelopment of the site may offer an excellent opportunity to actively manage any retained vegetation and accordingly we recommend restorative tree works be undertaken as appropriate. This will further improve the amenity value and landscape setting of the site and increase the useful life of any retained trees.

Brief Description of Proposed Development

- 5.8 This document supports the proposed development, consisting of:
- Earthworks
 - Construction of the AGP
 - Installation of lighting columns, ball stop fences etc.
 - Construction of any hard surfaces

Reference Documents

- 5.9 To assess the impacts of the proposed development on the arboricultural features at the site, the proposed site plan was overlaid onto the TCP to create a Tree Protection Plan (TPP). As well as identifying trees required to be retained and removed to facilitate the proposed development, the TPP assessed potential conflicts between the arboricultural constraints (such as the RPA and tree crowns) and the proposed site plan. Mitigation measures to negate these conflicts (such as ground protection, tree protection fencing and pruning requirements) and to protect the trees

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during the construction process have been included on the TPP, which can be found at Appendix D of this report.

Proposed Tree Removal

- 5.10 To facilitate the proposed development, no tree removal is required.
- 5.11 The proposed development has sympathetically incorporated all the site's adjacent trees, owing to the constraint-led design process of developing the scheme.

Tree Pruning Works

- 5.12 It is likely that no pruning will be required to any individual trees or tree groups to facilitate construction of the proposed development. It may, however, be necessary to prune back S4 to the boundary. S4 is a hedge which at the time of the survey was encroaching over the perimeter fence, adjacent the South-East corner of the site.
- 5.13 Any pruning requirements should be assessed again on site as and when necessary and any minor pruning required should be carried out to the specification laid out in Section 6 of this report.
- 5.14 Any pruning work, if carried out in accordance with Section 6 of this report, should be minimally invasive and have little impact on the overall health of the tree.

Proposed Works Within Root Protection Areas

- 5.15 It can be seen from the proposed development has no significant impacts to the trees onsite, with approximately a 0.2% incursion into the RPA of T5 arising from the batter works to the corner of the pitch. An incursion this size is likely to have a negligible effect on the trees longevity, and as such, installation of tree protection fencing is likely to further sufficiently protect this tree during construction.

Tree Planting and Green Infrastructure

- 5.16 A detailed planting plan should be considered to ensure appropriate fulfilment of the requirements of the NPPF (December 2024). An appropriate tree planting strategy will provide an opportunity to incorporate feature trees, and through careful consideration for tree species can help diversify the tree population. This diversification will help to increase resilience to pests & diseases and in the long term, improve the arboricultural resource at the site. An appropriate tree management and tree planting plan intrinsic to the development would serve to provide a net positive impact for arboricultural interests at the site.

6 TREE WORKS

Standard of Work

- 6.1 The tree work required to facilitate this development will adhere to the following standards.
- 6.2 All tree works shall be carried out in accordance with BS3998:2010 and latest arboricultural best practice.
- 6.3 All tree work shall be carried out by suitably qualified, competent and insured arboricultural contractors in accordance with Arboricultural Association Standard Conditions of Contract and Specifications for Tree Works (2008) Edition and BS 3998:2010 Tree Work.
- 6.4 All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.
- 6.5 When a branch is removed at its point of attachment, injury of the wood and bark of the parent stem or branch above the cut shall be avoided. If a branch collar is visible, the final cut shall be just outside it and care shall be taken to avoid tearing retained wood and bark when the cut is made. Preliminary cuts shall be made, if necessary, so as to remove weight, before a final cut is made. Care shall be taken to prevent falling branches from harming other parts of the tree (including its roots), its surroundings, people or property. Heavy branches shall be removed in sections and, where necessary, shall be lowered with ropes.
- 6.6 Prior to the commencement of any tree works an appropriate risk assessment shall be produced to describe the measures required to fulfil the statutory safety obligations. It shall aim to identify and prioritise the necessary control measures and precautions.
- 6.7 Following the works, it is recommended that the trees are monitored on a regular basis to ensure their ongoing vitality and health. These inspections shall be completed by a suitably qualified and experienced person.

Timing of Works

- 6.8 Any tree works required shall be completed prior to any construction and enabling works on the site.
- 6.9 All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees; notably birds and bats.
- 6.10 Nesting birds are protected by law and any removal / tree works should not be carried out during the bird nesting season (March-August inclusive). Should any vegetation be outlined for removal during this period, then an ecological inspection would be required to check that no nesting birds are present. Should checks reveal nesting birds the vegetation must remain until September or until an ecologist has certified that the fledglings have left the nest. A visual inspection for bats shall also be carried on mature / ivy clad trees prior to commencing operations.

7 OUTLINE TREE PROTECTION MEASURES

Construction Exclusion Zone

- 7.1 The protective fence line defines the Construction Exclusion Zone (CEZ), and the fencing shall not be moved or taken down at any time. Within the CEZ there must be no mechanical digging or scraping; no alteration to existing ground levels including soil stripping; no earthworks; and no handling or discharge of any chemical substance, concrete washings or of any fuels.
- 7.2 Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 7.3 Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Tree Protection Fencing

- 7.4 Unless otherwise agreed in writing with the Arboricultural Consultant and/or LPA Tree Officer, the fencing system to be utilised shall be in accordance with Appendix E and compliant with BS5837:2012.
- 7.5 The tree protection fence shall be erected as shown on the Tree Protection Plan (Appendix D) included with is report.
- 7.6 The fence line shown is the minimum required, and the length of the fence shall be extended or adjusted on site as agreed with the Arboricultural Consultant to ensure satisfactory protection of all retained trees and RPAs.
- 7.7 Where existing fences or proposed (permanent) construction site-hoarding provides the same level of protection to the retained trees and RPAs as the proposed tree protection fence, subject to agreement with the Arboricultural Consultant, the hoarding may serve as the tree protection fence. Notwithstanding, depending on the form and alignment of the construction site- hoarding it may be necessary to provide additional tree protection fence to ensure adequate protection of retained trees and RPAs as shown on the Tree Protection Plan.
- 7.8 Once the protective barrier is in place it must remain in situ throughout the course of the development until the completion of development, other than to facilitate agreed tree removal; see below.
- 7.9 Where necessary, tree protection fencing may be temporarily re-aligned in order to facilitate tree removal. Fencing is to be re-instated immediately following removal in a manner that encompasses the remaining trees and their respective RPAs.
- 7.10 During tree removal, no wheeled or tracked machinery is to enter the area previously encompassed by tree protective fencing as shown in the Tree Protection Plan.
- 7.11 Copies of the Tree Protection Plan shall be placed in the site office for reference by all site staff.
- 7.12 Signs detailing the purpose of the protective barrier shall be attached to the barriers at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the examples provided in . Signs must Appendix F be replaced as necessary should they be removed or become illegible.

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- 7.13 Following erection of the protective barriers and prior to commencement of the development it is recommended that an inspection of the site, by either the Council's Tree Officer or the Arboricultural Consultant, is arranged to confirm fencing has been installed in accordance with the Tree Protection Plan and that any relevant arboreal conditions attached to the planning consent have been met.

Reporting

- 7.14 Should any arboricultural issues become apparent during the works the site manager should immediately contact the Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

8 SUMMARY

The following is a summary of the primary points covered in this Arboricultural Impact Assessment:

- The application site is located at the The Highfield School in Letchworth.
- During the survey 12 individual trees and 1 tree group were recorded. Additionally, there were 6 areas of hedge, shrubs and/or young trees recorded.
- Of the 12 individual trees recorded, 5 were Category A (High quality), 3 were Category B (Moderate quality) and 4 were Category C (Low quality). The 1 group recorded was considered to be Category B.
- There are no TPO or Conservation Area restrictions affecting trees at or adjacent to the site and none of the trees form part of any ancient woodland.
- No trees require removal to facilitate the proposed development.
- The only pruning that might be required is to an encroaching off-site hedge (S4) which might require cutting back to the boundary.
- One minor encroachment (by approximately 0.2%) of the RPA of T5 has been deemed very minor and therefore within the tolerances of the tree.
- The establishment of a Construction Exclusion Zone (CEZ) by erection of Tree Protection Fencing or utilising existing fences will minimise the potential for harm to occur to retained trees.



APPENDICES

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Appendix A

Tree Characteristics Recorded During Survey

Tree Ref No:	Sequential reference number of trees or groups of trees. Avenues, woodlands and hedgerows were also recorded on the tree constraints plan. # - denotes inaccessible trees (best estimates are made about the location, physical dimensions and characteristics.)				
Species	Species listed by common name, with scientific names (italic lettering).				
Height (m)	Estimated height of canopy to nearest metre.				
Branch Spread	branch spread, taken as a minimum at the four cardinal points, to derive an accurate representation of the crown				
Stem diameter @ 1.5 m (m)	Estimated diameter of trunk at 1.5 m above ground level in metres unless otherwise indicated, multi-stemmed trees being measured in accordance with Annex C: BS5837:2012				
Existing height above ground level	To inform on ground clearance, crown/stem ratio and shading the estimated height of the first significant branch and direction of growth and canopy above ground level.				
Stem No.	Number of stems (if necessary) of individual tree.				
Life Stage	Expressed as:-	Y SM EM M	(Young) (Semi-mature) (Early mature) (Mature)	OM V D	(Over-mature) (Veteran) (Dead)
Physical Condition	Apparent condition expressed as the following categories, based upon a brief visual inspection from the ground only:-				Good Fair Poor Dead
Comments / Management Recommendations	General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay and physical defect), and/or preliminary management recommendations and potential for wildlife habitats (not exhaustive).				
Estimated remaining contribution (years)	Estimated remaining contribution, in years (<10, 10+,20+,40+)				
Tree Quality Assessment Value: <u>Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	A (Trees/Vegetation of high quality and value) B (Vegetation of moderate quality and value) C (Trees/Vegetation of low quality and value) U* (Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years)			
	* Category U trees can have existing or potential conservation value which might be desirable to preserve.				
Tree Quality Assessment Value: <u>Sub - Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	1 (Trees with mainly <i>arboricultural</i> value) 2 (Trees with mainly <i>landscape</i> value) 3 (Trees with mainly <i>cultural / conservation</i> value)			

Appendix B

Tree Survey Schedule

Table 1: Individual Tree Schedule

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height	First Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
T1	Tilia cordata (Small-leaved lime)	320	8	5	5	5	5	0.5	SW	1.5	EM	Good	40+	Epicormics growth on stem.Hanging branches in the crown.	A2
T2	Malus sp. (Apple species)	400	4	3	3.5	3	2	1	NW	1	M	Fair	10-20	Restricted inspection due to vegetation. Multi stemmed from 1m. Appears to have lost leader in past, resulting in poor form.	C2
T3	Quercus robur (Pedunculate oak)	350	10	6	3	5	5	2		0	EM	Good	40+	Restricted inspection due to access and vegetation. Viewed from swale to west, appears in fine condition.	A2
T4	Acer campestre (Field maple)	350	10	3	4	4	3	1.5		0	EM	Good	40+	Restricted inspection due to access and vegetation. Viewed from swale to west, appears in fine condition.	A2
T5	Acer campestre (Field maple)	700	12	5	5	6	4	5	East	2.5	M	Fair	10-20	Epicormics growth on crown.Pruning wounds to crown.Multi stemmed stem formed at 1.5 metres.Previous crown reduction.Restricted inspection due to vegetation.Hard surface located in RPA. In decline due to age, but remains viable.	C1
T6	Juglans regia (Common walnut)	300	15	7	1	5	2	5	NE	2	EM	Fair	20-40	Pruning wounds to crown.Asymmetric formed crown.Hard surface located in RPA. Lateral crown suppression from adjacent tree.	B2
T7	Juglans regia (Common walnut)	320	13	4.5	4	5	3	2	NE	2	EM	Good	40+	Pruning wounds to crown.Hard surface located in RPA. Good quality walnut.	A2
T8	Acer campestre (Field maple)	500	15	4.5	5	5	5	2	North	2.5	M	Good	40+	Pruning wounds to crown.Bifurcated stem formed at 2.0metres.Deadwood in the crown of minor extent.Restricted inspection due to ivy.Hard surface located in RPA. Good quality mature field maple.	A2
T9	Juglans regia (Common walnut)	300	14	5	4.5	7	4.5	3	SE	2	EM	Good	20-40	Pruning wounds to crown.Bifurcated stem formed at 2.5metres.Hard surface located in RPA.	B2
T10	Acer campestre (Field maple)	330	11	7	2	3.5	6	2	East	2	EM	Good	20-40	Epicormics growth on crown.Restricted inspection due to ivy. Lateral crown suppression from adjacent tree.	B2
T11	Acer campestre (Field maple)	250	10	7	0	3	3.5	3	North	2	SM	Fair	10-20	Pruning wounds to crown.Restricted inspection due to ivy and vegetation. Leaning north due to lateral crown suppression from adjacent tree.	C2
T12	Acer campestre (Field maple)	280	11	3	3	3	3	3	North	2	SM	Fair	10-20	Restricted inspection due to ivy and vegetation. Swamped in ivy.	C2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied



Table 2: Tree Group Schedule

Group No.	Species		Average Height (m)	Min/Max DBH (mm)		Average Crown Spread	Ave. Crown Height	Max. Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
G1	Carpinus betulus (Hornbeam)	Fraxinus excelsior (Ash)	12	100	220	4	1	SM	Good	20-40	Mixed deciduous group, outside perimeter fence and secondary fence.	B2
	Ilex aquifolium (Holly)	Corylus avellana (Hazel)									Heavily suppressed form. Deadwood present of minor extent. Off site tree group.	
	Crataegus monogyna (Hawthorn)										Restricted inspection due to access and vegetation.	

Table 3: Shrubs and Scrub Schedule

Section No.	Species		Height (m)	Comments
S1	Acer campestre (Field maple)	Prunus avium (Wild cherry)	5	Dense mass of shrubs and young trees.
	Crataegus monogyna (Hawthorn)	Corylus avellana (Hazel)		
	Rubus fruticosus (Bramble)			
S2	Rubus fruticosus (Bramble)		1.5	Bramble mass.
S3	Prunus laurocerasus (Cherry laurel)		2.0	Off-site laurel hedge. Regular maintenance.
S4	Prunus domestica (Wild plum) Fraxinus excelsior (Ash)	Acer campestre (Field maple)	4.0	Hedgerow section. Predominantly wild plum and field maple. Regular maintenance.
S5	Crataegus monogyna (Hawthorn)	Hedera helix (Ivy)	2	Hawthorn and ivy hedge.
S6	Crataegus monogyna (Hawthorn)	Hedera helix (Ivy)	2.0	Hawthorn and ivy hedge. Regular maintenance.

Appendix C

Tree Constraints Plan



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Notes

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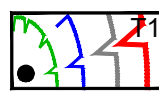
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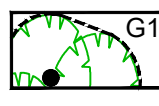
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Construction risks	Maintenance/Cleaning risks	Demolition/Adaption risks

Key

 Individual Tree with numbered reference.
(BS5837:2012 tree quality category as shown below)

 Tree group with numbered reference.
Average canopy extent for group. BS5837:2012 tree quality category as shown below.

 Shrubs / Hedge with numbered reference.

BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

 Root Protection Area (RPA) calculated in accordance with Section 4.6 - BS5837:2012

NOTES:

- Refer to RPS Tree Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey carried out using sub metre GPS survey device and Topographical Survey information provided by Client.

P01	First issue	TF	DC	20.11.24
Rev	Description	By	Ckd	Date

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Client Surfacing Standards Limited

Project The Highfields School

Title Tree Constraints Plan

Status	Scale	Date Created
For information	1:250 @A1	20.11.2024
Task Team Manager	Information Author	Task Information Manager
TF	TF	DC

Document Number
5297-RPS-XX-XX-DR-AR-9101

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

RPS Project Number	Suitability	Revision
794-PLN-LAN-5297	S3	P01

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Appendix D

Tree Removal & Protection Plan



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Notes

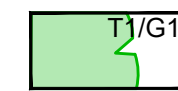
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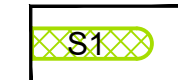
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Construction risks	Maintenance/Cleaning risks	Demolition/Adaption risks

Key



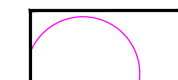
Individual Tree or Tree Group to be Retained



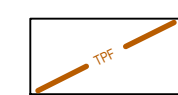
Shrubs / Hedge with numbered reference.

BS 5837:2012 Tree Quality Categories - Table 1

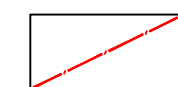
- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention



Root Protection Area (RPA) calculated in accordance with Section 4.6 - BS5837:2012



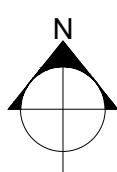
CEZ (Construction Exclusion Zone) - protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example details.



Existing fence that can perform the function of CEZ tree protection fencing.

NOTES:

- Refer to RPS Tree Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey carried out using sub metre GPS survey device and Topographical Survey information provided by Client.



P01	First issue	CM JM	TF	30-06-25
Rev	Description	By	Ckd	Date



Client Surfacing Standards Limited

Project The Highfields School

Title **Tree Protection Plan**

Status	Scale	Date Created
Planning	1:250 @A1	30-06-2025
Task Team Manager	Information Author	Task Information Manager
TF	CMJM	DC

Document Number
5297-RPS-XX-XX-DR-AR-9102

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

RPS Project Number	Suitability	Revision
794-PLN-LAN-5297	S3	P01

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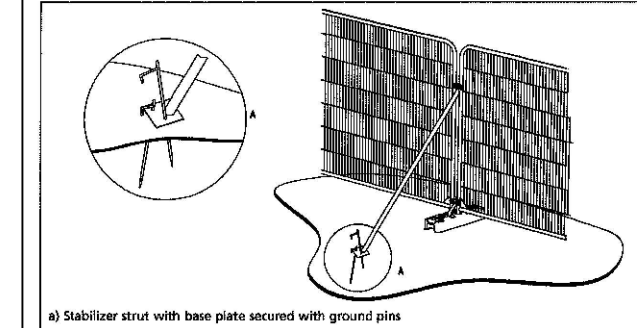
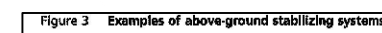
Tree Protection Specification

All vegetation identified for removal should be removed prior to the start of works. The Tree Protection Plan provides details of vegetation removals and retentions.

An assessment of crown impacts should be carried out by the Consultant Arboriculturist or the Clients Landscape Manager prior to implementing tree protection, so that any potential requirements for access pruning have been assessed.

Any access pruning should be carried out prior to the installation of the Tree Protection Fencing and carried out to the standards set out in BS3998:2010 Tree Works - Recommendations.

Tree Protection Fencing should be to the specification below:



Tree Protection should be provided for all trees to be retained. Here's fencing panels secured with anti-tamper clips and with supports fixed into the ground to prevent movement once installed. Manufacturers' recommendations should be provided to assure correct installation.

All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste, and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic, should also be excluded from the root protection area (RPA) unless previously agreed and adequate ground protection has been installed.

Where foot traffic is agreed within the RPA, single strength scaffold boards laid over a compressible material on a geotextile, or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

Appendix E

Example Tree Protection Barriers (BS5837:2012 Fig 2 & 3)

Figure 2 Default specification for protective barrier

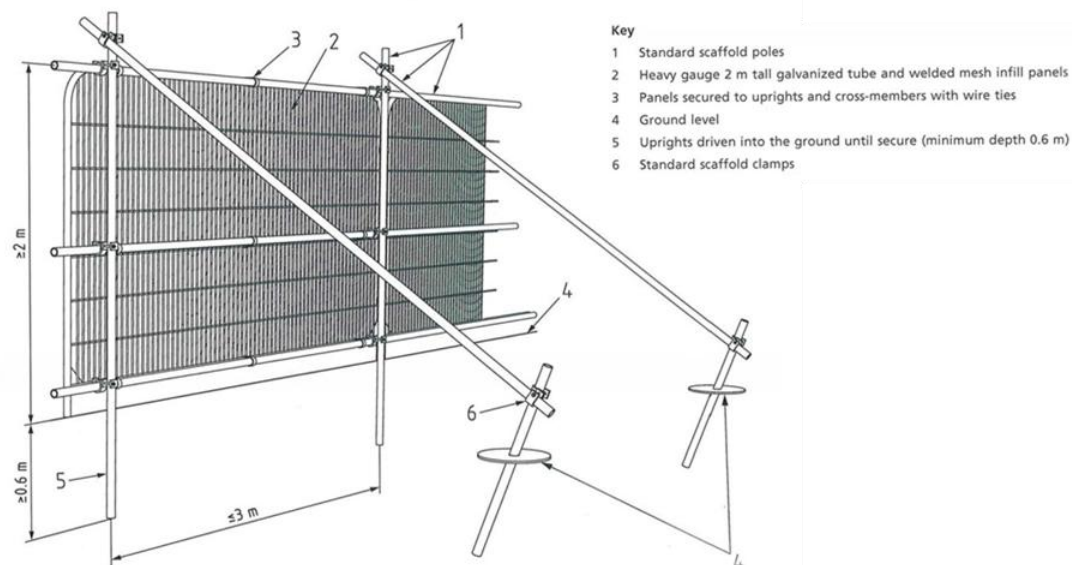
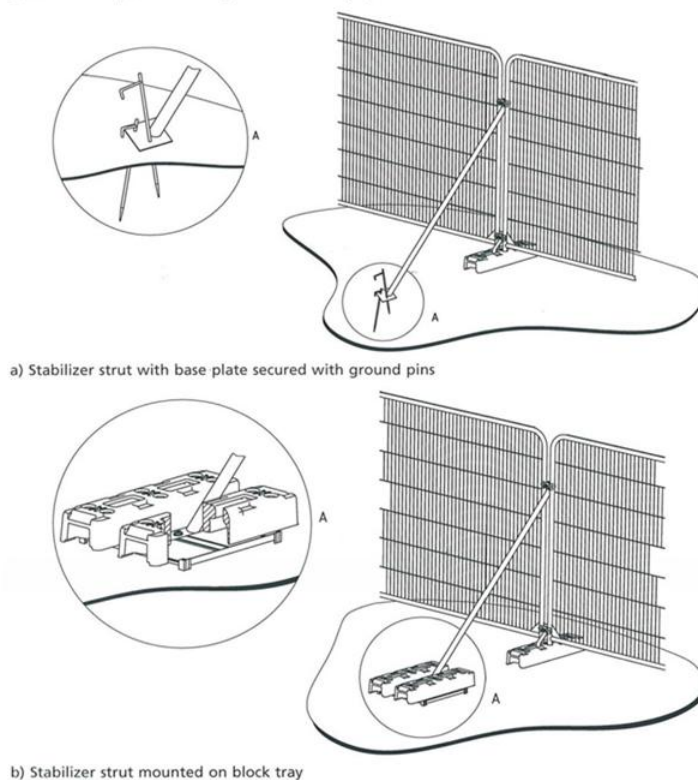


Figure 3 Examples of above-ground stabilizing systems



Appendix F

Construction Exclusion Zone (CEZ) Sign



Appendix G

Arboricultural Glossary

Age-class - A general classification of the tree into either - young, semi-mature, early mature, mature, over-mature, or veteran.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

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

Arboricultural Implications Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Asymmetric crown- Crowns that have a morphological bias in a particular direction. This can give the tree an aesthetically unfavourable appearance but can also subject the tree to uneven wind- loading forces and potentially result in failure.

Basal – Referring to the bottom part of a tree's stem.

Basifugal mortality – A natural process seen in trees in an advanced life stage whereby the trees extremities die back, and the inner crown expresses new growth, in order to conserve energy reserves.

Bifurcated - A growth characteristic, where two stems of similar size grow from the same point. Can create an inherent weakness.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Brown Rot- Decay caused by certain species of fungus which results in the affected wood becoming brittle and liable to suddenly 'break out', especially if in key structural areas.

Buttress flares – Extensions of the basal stem of a tree that provide additional structural support. See reaction wood.

ARBORICULTURAL IMPACT ASSESSMENT

Bifurcated- A growth characteristic, where two or more stems of similar size grow from the same point.
Can create an inherent weakness.

Cable braces – Cable braces used to support the crown of a tree, reduce impacts caused by wind- throw oscillation.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Central leader- See apical dominance.

Chalara ash dieback- A disease affecting ash trees caused by the fungus *Hymenoscyphus fraxineus*. Usually fatal, the disease causes leaf loss and crown dieback in infected trees. It was first confirmed in Britain in 2012.

Chlorosis- yellowing of leaves which can be caused by a range of factors, often an indicator of nutrient deficiency.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange and inhibits root growth.

Companion shelter- Shelter provided by neighbouring trees in groups to one another, factors such as wind throw are reduced due to supporting branches and interlocking root systems. Removing individual trees on the peripheries of such groups can expose neighbouring trees to environmental factors they have not previously been subjected to and can lead to individual failure.

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

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Conservation dead- wooding- Removal of deadwood using 'coronet cuts' that mimic the way a branch would naturally break off, maximising deadwood habitat availability for invertebrates.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

ARBORICULTURAL IMPACT ASSESSMENT

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a tree's branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Form - A general assessment of the shape and position of the tree within its environment.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Invertebrate tower – Pollarding of a (usually dead) tree to a safe height that leaves part of the main stem as a deadwood habitat for invertebrate species.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Phototropic growth – Growth responding to a light stimulus i.e. the sun. This can influence the form of a tree, particularly where other factors e.g. buildings or other trees, affect the amount/ direction light is received.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

ARBORICULTURAL IMPACT ASSESSMENT

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Rhizosphere - The rhizosphere is the narrow region of soil that is directly influenced by root secretions and associated soil microorganisms. In particular, mycorrhizal fungi form a symbiotic relationship with trees and assist in the assimilation of phosphates essential to the tree's health.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Scaffold limbs - The main structural branches within the crown.

Tree Removal & Protection Plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the AMS, which can be shown graphically.

U.L.E – 'Useful Life Expectancy' is an estimate based on currently known factors of the possible remaining life of the tree as an asset. AKA 'Estimated remaining contribution'.

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.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.

White Rot - A type of decay caused by certain species of fungi which results in the affected wood becoming flexible with little compressive strength.

Appendix H

Site Photographs