

**Arboricultural Survey to BS5837:2012**

**RBWM**

**Hilltop First School**

**Clewer Hill Road**

**Windsor**

**Berkshire**

**SL4 4DW**

**14 November 2023**

**Dean Meadows** BSc (Hons) MArborA

Principal Arboricultural Consultant

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## 1. Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 11 October 2023 from Vicky Kolliopoulou (Edgingtons Architects) to attend Hilltop First School, Clewer Hill Road, Windsor, Berkshire, SL4 4DW; grid reference, SU 94485 75885 (site) to undertake an arboricultural survey to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of Trees, Tree Constraints Plan, Arboricultural Impact Assessment, Arboricultural Method Statement and a Tree Protection Plan.

## 2. Author

Dean Meadows is a Principal Arboricultural Consultant and is the lead consultant for this project and the author of this report. He graduated from Myerscough where he studied BSc (Hons) Arboriculture and Urban Forestry, achieving a First Class for his research project and overall degree, obtaining a Distinction in all but one module. Before this, Dean completed a National Diploma in Applied Horticulture, also at Myerscough. He is now undertaking the MSc in Arboriculture and Urban Forestry.

In 2020, Dean was named as one of Pro Landscaper’s 30 Under 30: The Next Generation, an award recognising exemplary young, aspiring, and ambitious professionals.

Dean has expertise in undertaking large to small-scale tree risk and condition surveys and collaborates with organisations, landowners and Local Authorities to ensure the application of common-sense inspection and management principles to meet their duty of care efficiently and cost-effectively.

Dean holds the industry standard LANTRA Professional Tree Inspection accreditation. He is an experienced and proficient user of THREATS (Tree hazard: Risk Evaluation and Treatment System) and is a Registered User of QTRA (Quantified Tree Risk Assessment).

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of one million Pounds Sterling in each and every claim.

**Table 1:** Documents referred to.

Document	Reference No.
Survey base drawing	230561
LPA pre-app comments	N/A
British Standard 5837:2012	“BS5837”
Tree Survey Schedule	Arbtech TS 01
Tree Constraints Plan	Arbtech TCP 01



### 3. Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the proposed scheme was undertaken by Dean Meadows on 18 October 2023.

During the survey, trees were categorised using “Table 1 – Cascade chart for tree quality assessment” of the BS5837:2012 (see Appendix 1).

A total of 3No. individual trees were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).

Multiple trees and shrubs occupy the site, none of which meet the minimum diameter requirements and/or are sufficiently distant from the proposed scheme to be considered for this survey.

**Table 2:** Documents upon which this tree survey has been based.

Document	Originator	Reference Number	Title
Survey base drawing	Interlocks Surveys	230561	Topographical Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and advanced decay detection equipment were not employed, though may form part of the survey’s management recommendations. Measurements were taken using specialist tapes, laser, and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

\* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.



## Site description

The site is a primary school located off Clewer Hill Road in Clewer Green, Windsor. The focus area of the survey was around the north east building facing the main driveway/car park which was mostly hard standing with a near-flat topography.



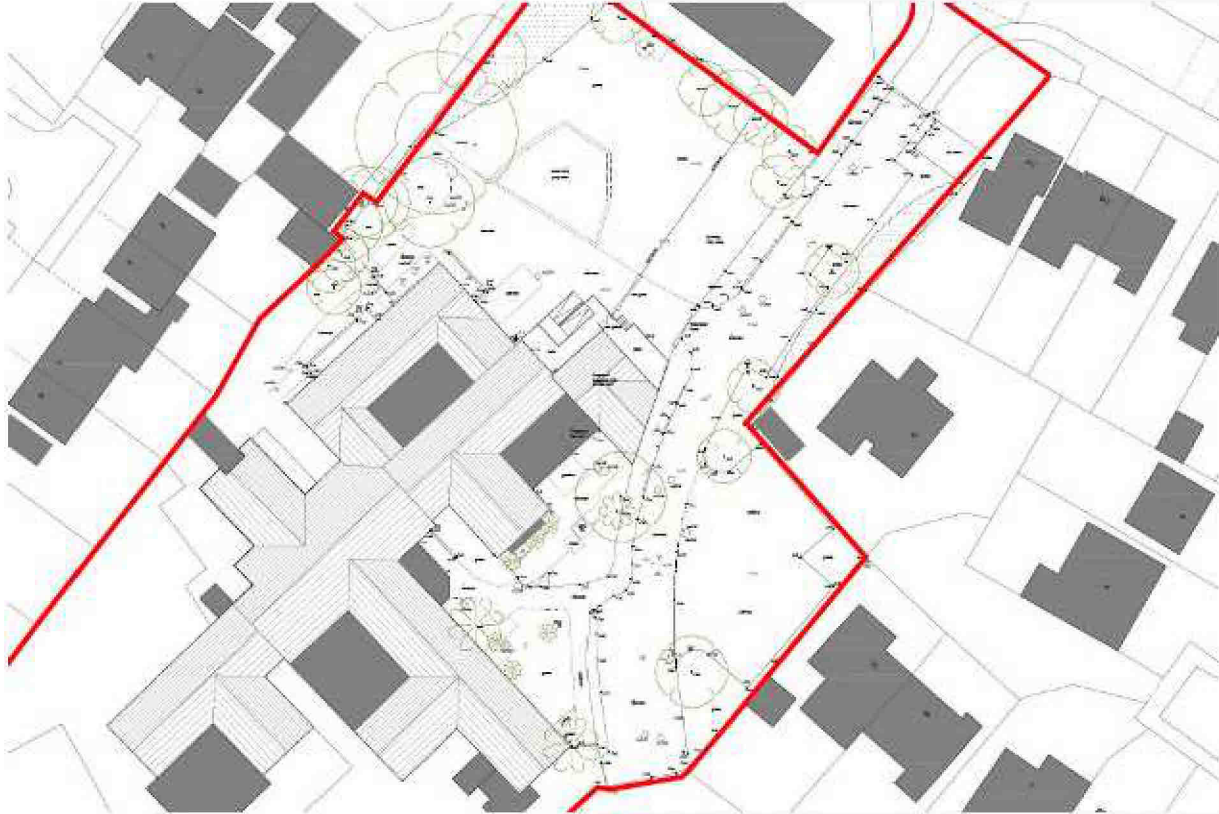
**Figure 1:** OS Map (Bing Maps)



**Figure 2:** Aerial Image of site with approximate red line boundary (Google Earth)

## Proposed scheme

The proposals include the refurbishment of part of the existing building of Hilltop First School to provide an improved resource base for pupils with special education needs and disabilities (SEND), and extension of the existing school to host the relocated nursery due to the refurbishment.



**Figure 3:** Proposed scheme drawing number: 1103 (Edgingtons Architects)

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.



## 4. BS5837:2012 Scope

This standard recognises that there can be problems for development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees, in relation to construction, to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

## 5. Methodology

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all tree within impacting distance of the proposed scheme and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable, and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories: **A**, **B**, **C**, or **U** (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.



The survey schedule lists all the trees or groups of trees. The following information is also provided:

- a) reference number (to be recorded on the tree survey plan);
- b) species (common or scientific names);
- c) height in meters (m);
- d) stem diameter in millimetres (mm) at 1.5m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
- e) branch spread in meters taken at the four cardinal compass points;
- f) height of crown clearance above adjacent ground level in meters (m);
- g) age class (newly planted, young, semi-mature, early mature, mature, over mature);
- h) physiological condition (e.g. good, fair, poor, decline and dead);
- i) structural condition (e.g. good, fair, poor or not visible);
- j) comment about the tree, its location and preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat;
- k) The retention category referring to the quality and useful contribution in years; **U** = <10yrs; **A** = >40yrs; **B** = >20yrs; **C** = >10yrs. The retention subcategory referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Appendix 1 Cascade chart for tree quality assessment).

## 6. Definitions

### Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training, and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

### Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

### Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.DWG file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

### Root Protection Area

An RPA is a 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 m<sup>2</sup>.

### Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m<sup>2</sup>), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

### Arboricultural Impact Assessment (AIA)

This is a 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.

### Tree Protection Plan (TPP)

A TPP is plan, typically delivered as an AutoCAD drawing (.DWG file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.



## Arboricultural Method Statement (AMS)

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

## 7. Recommendations

With the benefit of making an assessment of your planning proposals, I make the following recommendation to ensure that there are no irrevocable issues to the proposed retained trees and so that no conditions relating to arboriculture are attached to any planning consent secured; obtain an arboricultural report to include:

- a) An arboricultural impact assessment (AIA).
- b) An arboricultural method statement (AMS).
- c) A tree protection plan drawing (TPP).

## 8. Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions, and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

This report does not constitute a tree safety survey, nor does it fulfil the stewards/landowners Duty of Care in relation to tree risk.



## 9. Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (.PDF)
- Tree Constraints Plan drawing (.DWG & .PDF)

If you require clarification of information contained herein, please do not hesitate to contact us via 01244 661170.

Yours Sincerely,



**Dean Meadows** Bsc (Hons) MArborA

Principal Arboricultural Consultant



Deanmeadows@arbtech.co.uk

## Appendix 1: Table 1 Cascade chart for tree quality assessment

## BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

**Table 1** Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
<b>Category U</b>  Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	<ul style="list-style-type: none"> <li>• Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).</li> <li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.</li> <li>• Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.</i></p>	Dark red
<div style="display: flex; justify-content: space-around; font-weight: bold;"> <span>1 Mainly arboricultural qualities</span> <span>2 Mainly landscape qualities</span> <span>3 Mainly cultural values, including conservation</span> </div>		
<b>Trees to be considered for retention</b>		
<b>Category A</b>  <b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominate and/or principal trees within an avenue).	Trees, groups, or woodlands of particular visual importance as arboricultural and/or landscape features.
<b>Category B</b>  <b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of beyond 40 years; or trees lacking the special quality necessary to merit the category 'A' designation.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).
<b>Category C</b>  <b>Trees of low quality</b> with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape value.	Trees with material conservation or other cultural value.
		Trees with no material conservation or other cultural value.
		Grey



## Appendix 2: Schedule of Trees

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## Tree Survey Schedule Hilltop First School

<b>Client</b>	RBWM
<b>Survey Date</b>	18 October 2023
<b>Weather Conditions</b>	Overcast
<b>Surveyor</b>	Dean Meadows

### Key:

<b>Tree Number</b>	A unique number or reference to identify trees or groups as shown on associated plans.
<b>Species</b>	Common and or taxonomic names.
<b>Height</b>	The height of the tree in meters (m).
<b>Trunk Diameter</b>	The stem diameter in millimetres (mm) taken at 1.5m above ground level unless otherwise specified. # denotes diameter estimated
<b>Canopy Spread</b>	The extent of the canopy taken in meters (m) to the principle points of the compass, North (N), East (E), South (S) and West (W).
<b>Crown Clearance</b>	The height of canopy clearance above ground level to the lowest point of the canopy, taken in meters (m).
<b>Age Class</b>	Age classification; Young (Y), Early Mature (EM), Mature (M), Late Mature (LM), Veteran (V).
<b>Physiological Condition</b>	The general physiological condition of the tree; Average, Below average, Low, Dead.
<b>Structural Condition</b>	The general structural condition of the tree; Good, Moderate, Indifferent, Poor, Hazardous.
<b>Comments</b>	Notes and general comments on the structural condition of the tree, its environment and it estimated remaining contribution.
<b>Category</b>	The retention category referring to the quality and useful contribution in years; <b>U</b> = <10yrs; <b>A</b> = >40yrs; <b>B</b> = >20yrs; <b>C</b> = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation.

Tree No.	Species	Height	Trunk Diameter	Canopy Spread	Crown Clearance	Age Class	Physiological Condition	Structural Condition	Comments	Category
1	Sweet gum	10m	210mm 250mm 180mm	4m	1.5m	Early-mature	Average	Poor	Multi-stemmed with bark included with unions; growing within strip of lawn within playground area.	C (1)
2	Sweet gum	4m	230mm	3m	1.5m	Early-mature	Average	Moderate	Growing within strip of lawn within playground area; topped at 2 m.	C (1)
3	Olive	4m	60mm 70mm 80mm 70mm	3m	1.5m	Early-mature	Average	Moderate	Multi-stemmed.	C (1)



## Appendix 3: Tree Constraints Plan

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**Tree Categories**

These are categorised in accordance with the guidance set out in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Category '1' - Trees in such condition that they cannot realistically be retained as living trees in context of the current and use for longer than 10 years.

Category '2' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category '3' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 100mm.

**Root Protection Area**

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Area (RPA) should be defined around each of the category '1' and '2' trees. This is a minimum area in which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

The calculated RPA is subject to T17M, which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

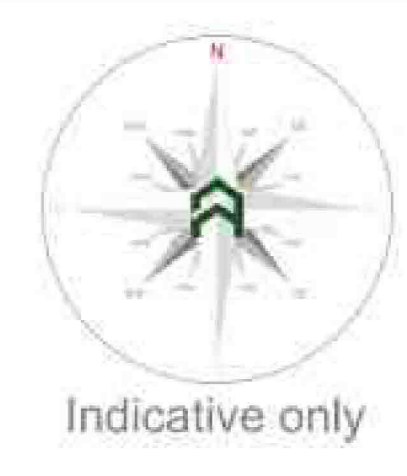
**Tree Survey Report**

Please refer to Arbttech Consulting Ltd 'Tree Survey Report and Tree Schedule' for full details on all surveyed trees, hedge lines and major site features.

All trees were surveyed and categorised in accordance with the guidance set out in the British Standard BS5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

We make the following recommendation to ensure that no conditions relating to arboriculture are attached to any planning consent secured, obtain and arboricultural report to include:

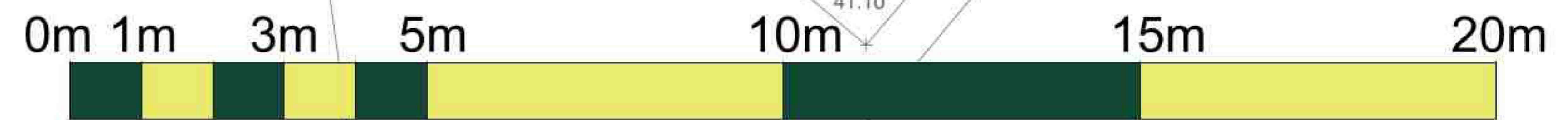
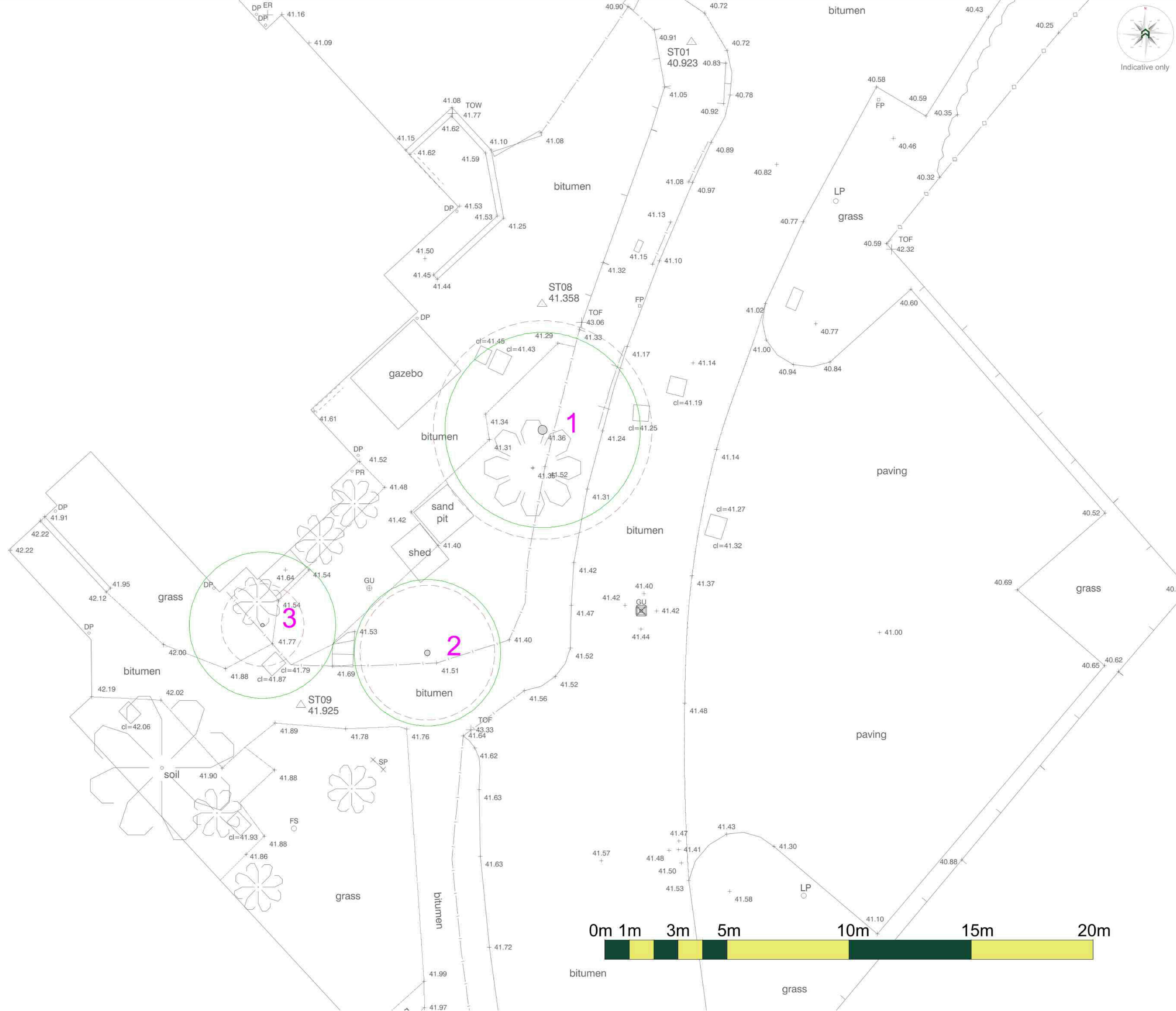
- a) An arboricultural impact assessment (AAI)
- b) An arboricultural method statement (AMS), and
- c) A tree protection plan (TPP).



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<http://arbttech.co.uk> 01244 661170

Project:	Hilltop First School Clewer Hill Road Windsor SL4 4DW														
Client:	RBWM														
Drawing:	Tree Constraints Plan														
Based on:	230561														
Drawing No:	Arbttech TCP 01	Rev:													
Date:	October 2023	Scale:	1:50 @ A0												
Drawn:	DM														
Key:	<table border="1"> <tr> <td>Tree</td> <td>1</td> <td>Tree</td> <td>2</td> <td>Tree</td> <td>3</td> </tr> <tr> <td>RPA</td> <td></td> <td>Category '1' trees</td> <td></td> <td>Category '2' trees</td> <td></td> </tr> </table>			Tree	1	Tree	2	Tree	3	RPA		Category '1' trees		Category '2' trees	
Tree	1	Tree	2	Tree	3										
RPA		Category '1' trees		Category '2' trees											

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## 10. Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech TSR 02	Dean Meadows		Principal Arboricultural Consultant	02	14/11/23

### Limitations

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