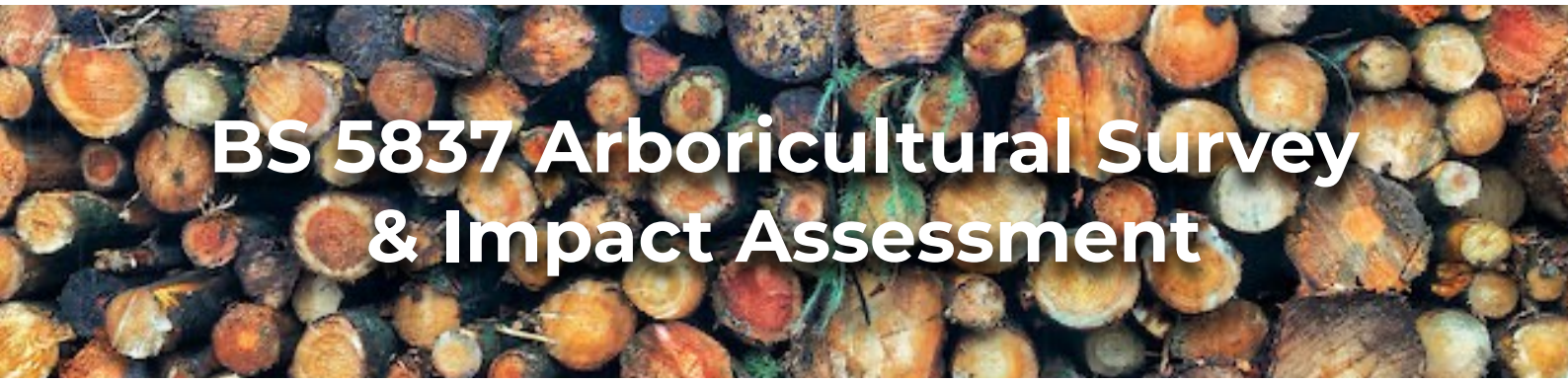
KEY TREE SOLUTIONS

ARBORICULTURAL CONSULTANTS



BS 5837 Arboricultural Survey & Impact Assessment

Site Address:	Hawshaw Bank, Barnsley, South Yorkshire S74 9ND	Client:	A.N.S Construction Ltd. F.A.O Matt Thistlewood
Report Ref:	HSBB01-24	Report Date & Revision:	8th May 2024 Original
Author:	Laurence Smith BSc (Hons) Arb, M Arbor A	Signed:	Laurence Smith

Terms of Reference

Key Tree Solutions has been commissioned by Mr Matt Thistlewood, working on behalf of A.N.S Construction Limited, to undertake an arboricultural survey in accordance with the British Standard BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (BS5837). This report has been conducted in support of a planning application to develop the site with 14 dwellings. The proposed development layout is shown in the Proposed Site Plan under Appendix: D which indicates the impact of the proposal on the existing site elements.

The arboricultural survey was carried out by Laurence Smith, BSc (Hons) Arb, M Arbor A, an Arboricultural Consultant. Laurence has a degree in Arboriculture and a BTEC National Diploma in Forestry and Arboriculture. He is a professional member of the Arboricultural Association with over a decade of experience within the arboricultural industry, initially as an arborist and for the last seven years as a consultant.

Summary

The proposed development site is not located within a conservation area and no TPOs are listed within or adjacent to the site boundary on the Barnsley Council's interactive viewer.

The development proposal is to build 14 new dwellings on the plot along with an access road.

To achieve this approximately 50% of the hedge element H2 (Cat. C) will need to be removed as its location conflicts with the proposal.

Although this feature provides some habitat potential the loss is not considered significant to the surrounding landscape. The partial loss of this feature should be mitigated with new trees within the development proposal. The proposed site plan shows 13 potential new tree planting locations which would give a net gain in woody vegetation.

1 Introduction

1.1 Arboricultural Report

This report comprises an arboricultural survey and Arboricultural Impact Assessment (AIA). It categorises and reports on the trees within and adjacent to the site boundary along with providing details of the development proposal and how this will impact the arboricultural elements. These impacts have been shown in the Proposed Site Plan included in Appendix D, which acts as a visual aid for the proposal.

1.2 Proposed Works

The works proposal is to develop the site with 14 new dwellings.

The proposal's layout has been given in the Proposed Site Plan which indicates the impact on the surveyed elements.

1.3 Scope of Works

This report presents arboricultural information captured on the 2nd of May 2024 by Laurence Smith BSc (Hons) Arb, M Arbor A. The scope of work includes:

- Survey of arboricultural elements potentially impacted by the scheme.
- A map showing any statutory protection which may affect the site.
- Constraints plan to show the location and quality of existing features.
- An Arboricultural Impact Assessment (AIA).
- An Arboricultural Impact Plan (AIP).

2. Methodology

2.1 General

This tree survey has been undertaken and compiled in line with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS5837). This document contains guidance and recommendations on the relationship between trees and the design, demolition, and construction processes, providing an overview of the principles and procedures to ensure a harmonious and lasting relationship between trees and structures.

BS5837:2012 does not provide explicit parameters for measuring an arboricultural resource's sensitivity, nor does it assess the impact of a proposed development on trees (other than listing the number of trees that would have to be removed or pruned for the undertaking). By using the parameters specified in the British Standard, Arboriculturalists can determine the quality of all trees and other arboricultural features that may be affected by a development.

While the BS categories may be interpreted differently, the cascade chart in BS5837:2012 provides guidance on defining a tree's qualities so that the design process can determine how to retain the higher-quality trees.

2.2 Spatial Scope

In some instances, trees may be located outside the site boundary but still have the potential to impact any development, for example, overhanging branches and root protection areas. In these instances, they have been included in the survey. However, some data is likely to have been estimated so as not to trespass. Trees on access routes are not part of this survey unless specifically requested.

2.3 Data Gathering

Data has been collected in accordance with BS 5837, as outlined in Appendix A within this report. The tree categorisation method applied by the arboriculturist is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions about which trees should be removed or retained if development occurs.

For a tree to qualify under any given category, it should fall within the scope of that category's definition as defined in Appendix A (categories U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three sub-categories (1, 2, 3). Sub-categories 1, 2 and 3 are intended to reflect the arboricultural, landscape and cultural values, respectively.

Trees were recorded as individual specimens and groups. Where trees were recorded as groups, measurements were typically taken from the largest tree within the group. This survey level meets the requirements of BS 5837:2012, which states that "trees growing as groups or woodland should be identified and assessed as such". The British Standard defines the term group as "trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture)".

In all reasonable circumstances, tree diameters were measured via a specialist measuring tape at 1.5m from ground level. Where access was not possible, measurements have been estimated and indicated with an asterisk (*) on the arboricultural data sheets. The crown spread of the surveyed trees was measured in each of the four cardinal points using a laser distometer or paced out if access was not feasible. This survey level is deemed sufficient by the arboriculturist to establish the extent of the crown spread. All crown spread measurements should be taken from the arboricultural data sheet (Appendix B of this report).

The trees were assessed using the Visual Tree Assessment (VTA) methodology devised by Mattheck and Breloer (1994). VTA is a ground-level visual assessment of a tree, carried out to identify obvious mechanical defects, signs of ill health, potential mechanical failure and the suitability of a tree to a site.

2.4 Survey

The approach to the survey involved a ground-level walk assessment with tree and vegetation locations plotted over the topographical data collected by Haycock + Todd and provided by A.N.S Construction Ltd. No checking of this document was undertaken, and any comments are given on the assumption that this supplied document is correct.

Trees which were not included in the topographic data but had the potential to impact any development have been indicated with an 'X' over the stem on the constraints plan and AIP. These locations have been estimated via a handheld GPS device and aerial photography. Given this lack of topographical data, Key Tree Solutions can not be held responsible for any inaccuracies in asset location.

Survey elements have been prefixed with a descriptive letter which can include Trees (T), Groups (G), Shrub Groups (SG), Woodlands (W) and Hedges (H).

2.5 Limitations to Survey

Where access was permitted, trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring or internal decay detection) were carried out. As such, no assessment of the internal condition of the wood of these trees can be given.

The tree survey is not intended to be a risk management survey targeting safety-related issues. However, where specific hazards have been identified, these have been recorded, and management recommendations provided and are detailed within the tree survey schedule (see Appendix B of this report).

BS 5837:2012 does not include arguments for or against the development or the removal or retention of trees. Where development is to occur, the standard guides how to decide which trees are most appropriate for retention.

The reliability of the tree locations relates directly to the accuracy of the supplied topographical data, if applicable, available aerial imagery and in-field plotting. As such, tree locations are potentially open to discrepancies, and their exact locations may need verifying.

The report does not comment on the possible effects of trees on neighbouring properties, including in relation to subsidence or heave or with regard to potential hazards presented by trees surveyed.

Trees are living organisms which constantly adapt to their surroundings and are often subject to changes outside human control including harsh or unexpected weather conditions including heavy storms. Changes to groundwater or damage to underground structures may also impact tree health and safety. As such the findings within this report are only valid for twelve months.

While this report aims to highlight any potential issues it cannot guarantee against pest and disease attacks or weather-related failures.

3. Existing Site Conditions

3.1 Existing Land Use

The site is currently in the process of development with spoil piles and dirt tracks for access.

3.2 Existing Trees

There are no trees within the site boundaries, however, there are two hedge elements on the southeast and southwestern boundaries. Outside the site, there are several trees within the wider landscape, although these are situated greater than 15m from the site boundary and can not be considered constraints to the development proposal.

3.3 Site Topography

The site has a fall in height from south to north. More accurate site topography can be viewed on the Arboricultural Constraints Plan.

3.4 Soil Assessment

No soil assessment was carried out on site by the Arboriculturist. However, baseline data from the British Geological Survey states that the area's underlying bedrock is considered Pennine Middle Coal Measures Formation.

Further information collected from the Cranfield Soil and Agrifood Institute shows that the site is considered to have "Slowly permeable seasonally wet acid loamy and clayey soils" with a "Loamy and clayey texture".

Where clay-based soils are present, the ground may be susceptible to volumetric changes resulting from the uptake and release of moisture by tree roots, which may influence any potential foundation development.

3.5 Statutory Protection

Local Planning Authorities (LPAs) have the power to preserve selected trees and woodlands by making Tree Preservation Orders (TPOs). Similarly, special provision is provided to trees located within a Conservation Area (CA) which are not the subject of a TPO. The LPA's powers to do this are provided by the following Act of Parliament and its associated regulations:

- Town and Country Planning Act 1990
- Town and Country Planning (Determination of Appeals by Appointed Persons) (Prescribed Classes) (Amendment) (England) Regulations 2008
- Town and Country Planning (Trees) (Amendment) (England) Regulations 2012

The principal effect of a TPO is to prohibit the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without first obtaining the consent of the relevant local authority. Where works to trees within a CA are proposed, the relevant LPA must first give six weeks' notification. Unauthorised works on trees protected by a TPO or those within a CA could result in an unlimited fine.

The interactive map on the Barnsley Council's website, visited on the 8th of May 2024, shows that the site is not located within a conservation area and that no TPOs are listed within or adjacent to the site boundary. The results from this search are given in Appendix C and illustrated in the supplied plans.

Trees should be checked for protected species before work is undertaken where tree works are necessary. While it is outside of the scope of this tree survey to comment on the actual or likely presence of protected animal species, it is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations (2010). Likewise, nesting birds are protected by the Wildlife and Countryside Act (1981) (as amended) and Badgers by the Protection of Badgers Act (1992). If protected species are discovered, works should cease immediately, and Natural England should be contacted for advice.

Alongside these animal protections, landscape features may also be protected under the following acts and regulations.

- The Hedgerow Regulations 1997
- Countryside and Rights of Way Act 2000
- Natural Environment and Rural Communities Act 2006 & Environment (Wales) Act 2016

4. Arboricultural Impact Assessment

4.1 General

This report considers the trees adjacent to the proposed works and assesses their condition and suitability for retention. The report is supplemented by the AIP (Appendix D of this report), which presents in graphic form the trees recorded as part of the survey, their specific reference numbers and any impact the proposed development will have upon them.

The arboricultural data sheets within Appendix B of this report cover all the trees recorded as part of this assessment in line with the *BS 5837:2012* guidance.

4.2 Root Protection Areas

The Root Protection Area (RPA), as defined in *BS 5837:2012*, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance "to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system".

The recommended minimum area (m2) to avoid potentially harmful disturbance has been calculated and entered into the tree schedule (see Appendix B of this report) for all trees. The RPA for each tree has been illustrated on the site plans as a pink dashed circle centred on the tree's stem.

4.3 Utilities and services

No information has currently been made available regarding the locations of drainage and underground utility runs.

Any new subsurface utilities should be directed away from or around existing RPAs.

4.4 Scheme Details

The proposed works are viewable on the Proposed Layout Plan and described in Section 1.3.

4.5 Arboricultural Impacts and Mitigation

The proposal's impacts are listed in Table 1, along with recommendations for mitigation.

Table 1.

Group / Tree No.	Age & Species	Cat.	Removal due to:		Mitigation required for		Details of how proposed build layout affects trees and recommendations for mitigation.
			Cons.	Cond.	Canopy	RPA	
H2	Semi Mature Hawthorn (*Crataegus*)	C2	✓				Approximately 50% of the southern aspect of the hedge element will be in direct conflict with the development proposal. Mitigate with new new trees within the development proposal.

Group / Tree No. - ID referenced within the arboricultural survey.
Age & Species - Age classification and common name for specimen.
Cat - BS 5837 category rating.
Removal due to - '*Cons*' = Construction. '*Cond*' = Condition.
Mitigation required for - Canopy or for RPA (Root Protection Area).

The impacts of the proposals have been quantified as accurately as possible, given the information available at this time.

The development proposal would require the removal of the southern aspect of H2 a category C element.

4.6 Preliminary Management Recommendations

The arboricultural data sheets (see Appendix B) show management recommendations for those trees that were identified as requiring management intervention at the time of the survey.

As part of a duty of care, the property owner is responsible for ensuring the health, safety and management of all trees within the boundary. As such, monitoring should be an ongoing process with periodical inspections by a qualified arborist where applicable.

4.7 Mitigation Measures

Mitigation for the partial loss of the hedge element should be conducted by planting new trees within the development proposal. The proposed site plan shows 13 potential new planting locations which is considered to be ample mitigation for the partial loss of the hedge feature.

Appendix A: Key & British Standard BS5837:2012 Survey Table

A1. Survey Key

Column Heading	Description
ID	Each surveyed element has been given a unique reference number as shown on the survey drawings. Each number is prefixed with a letter to represent the element type. (T) Tree, (G) Group, (H) Hedge, (W) Woodland.
Age Class	The tree is described as Young, Semi Mature, Early Mature, Mature, Over Mature, Veteran or Dead.
Species	The English common name has been used. In some instances the botanical name is also given in *italics*.
Height (m)	An indication of the tree's height measured in metres.
Stem Diameter (mm)	The diameter of the tree stem when measured at 1.5 metres from ground level.
Branch Spread (m) N E S W	The distance the live crown extends in each fo the four cardinal directions.
First Main Branch Height (m) / Direction	Height given in meters that the first significant branch extends from the stem and the direction of which it points towards.
Canopy Height (m)	Height given in metres of the lowest part of the canopy.
Vitality	A quick reference guide to the trees overall health and condition. Given as Good, Fair, Poor or Dead **Good** – a tree with little or no obvious physiological defects; leaf density and colour are typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown. **Fair** – a tree with moderate physiological defects may have some or all of the following factors; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient, there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown. **Poor** – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown. **Dead** – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.
General Observations	Narrative comment on the general condition including significant defects and overall appearance.
Preliminary Management Recommendations	Any works recommended in order to minimise risk, improve form or maintain a high value.
Estimated Remaining Contribution	An estimation of how long the feature will contribute to its surroundings in the current landscape context. Recorded in bands of either 10< years, 10> years, 20> years and 40> years.
Category Grading	The trees are graded to the categories prescribed within BS5837:2012 (U, A, B & C). These letters are suffixed with a number which gives an indication of how the tree sits within the landscape. More information on these values is given in the cascade chart in A2.
Root Protection Area Radius (m)	The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability.

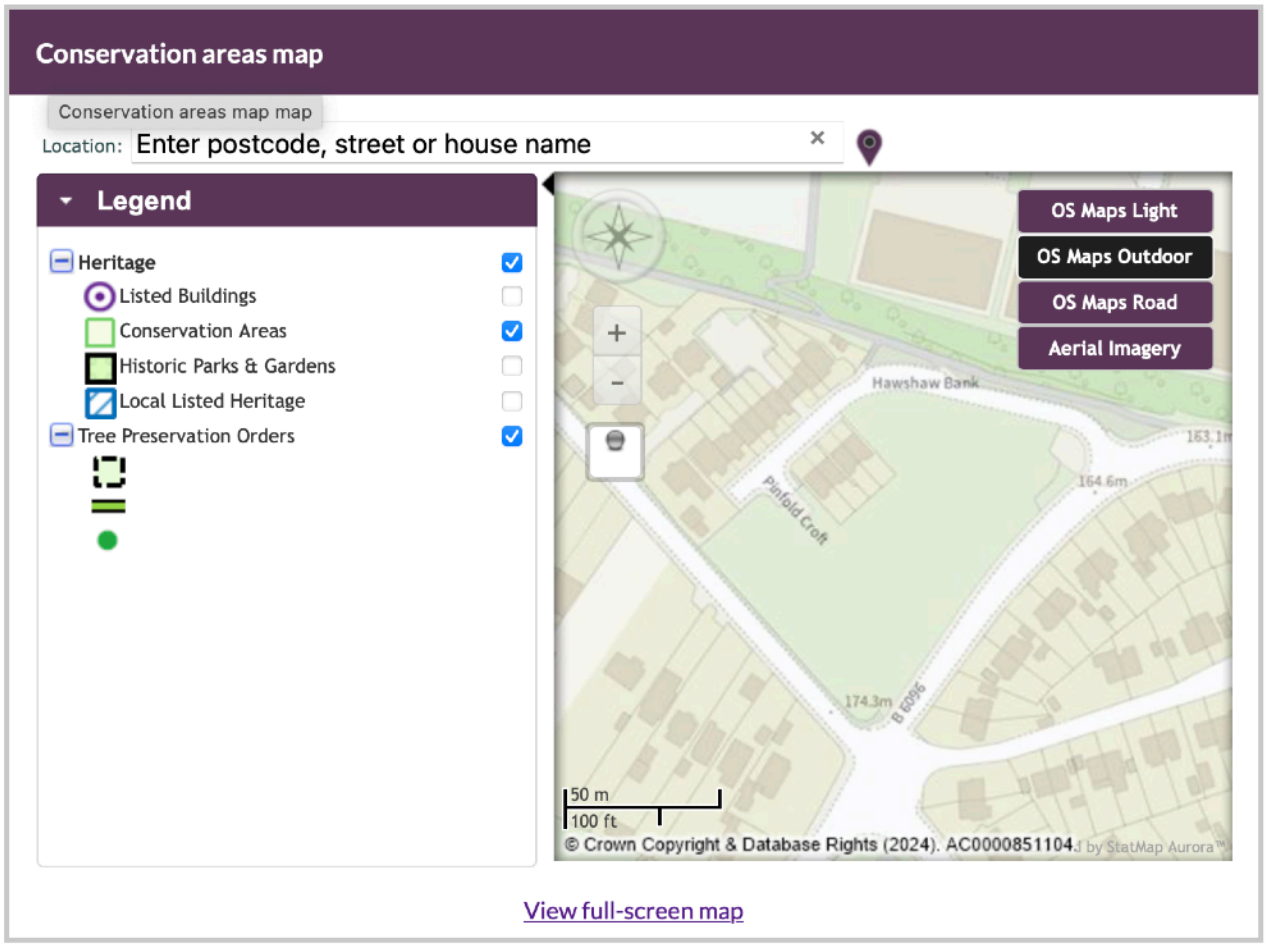
A2. BS5837: 2012 Cascade Chart

Trees to be considered for retention	**(1) Mainly arboricultural qualities**	**(2) Mainly landscape qualities**	**(3) Mainly cultural values, including conservation.**	**Identification on plan**
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; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**Light Green**
Category B **Trees of moderate quality** 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 remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	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 with material conservation or other cultural value	**Mid Blue**
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	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 benefits	Trees with no material conservation or other cultural value	**Grey**
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the contact of the current land use for longer than 10 years.	• Trees that have a 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). • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. • Tree infected with pathogens of significant to health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality **NOTE**: Category U trees can have existing or potential conservation value which it might be desirable to preserve.			**Red**

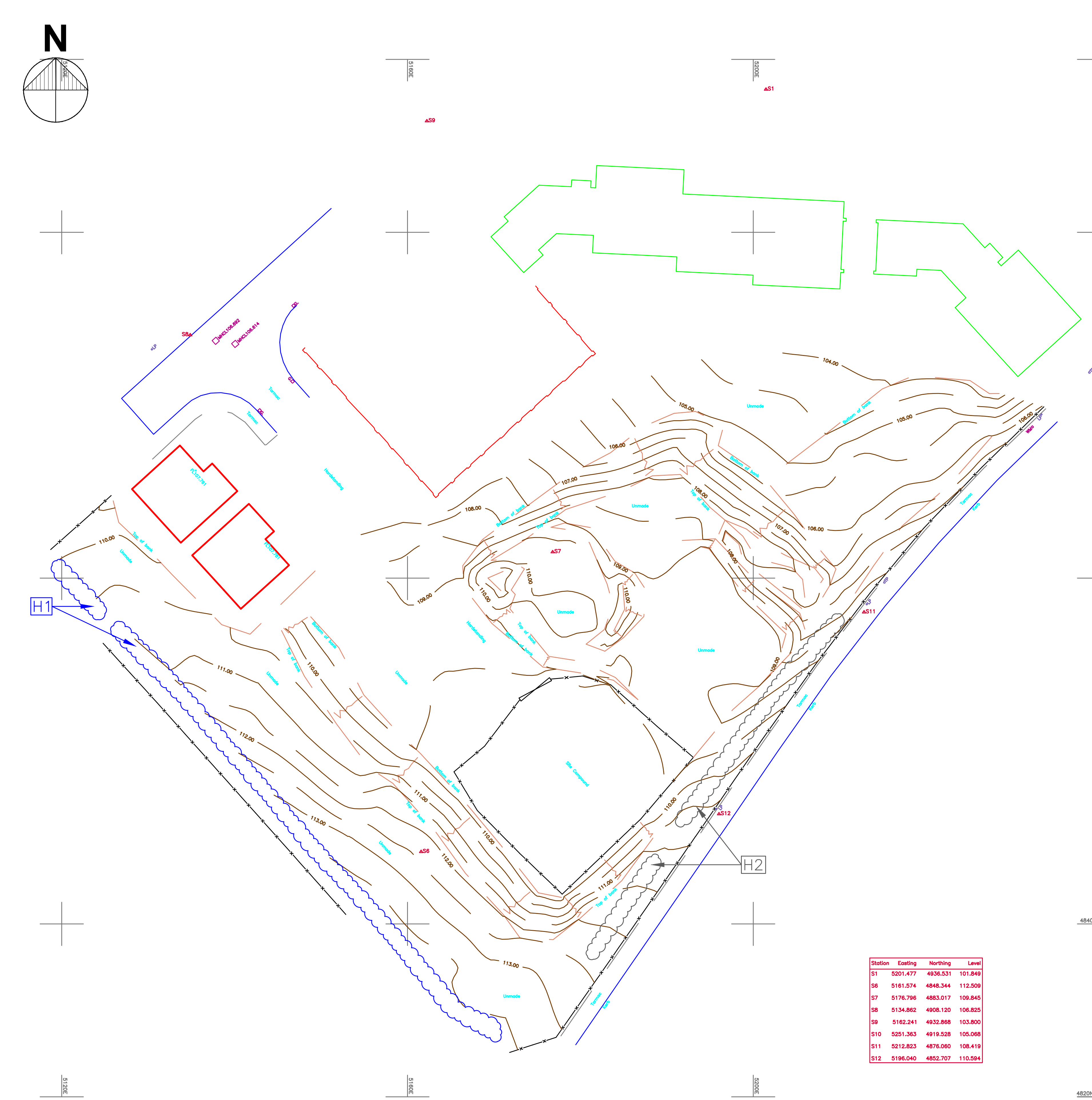
Appendix B: Arboricultural Survey Data

ID	Age Class	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) N E S W	First Main Branch Height (m) / Direction	Canopy Height (m)	Vitality	General Observations	Preliminary Management Recommendations	Estimated Remaining Contribution	Category Grading	Root Protection Area Radius (m)
H1	Early Mature	Hawthorn (*Crataegus*)	2.5	100 ave.	N/A	0	0	Fair	A predominantly Hawthorn hedgerow with Privet, Bramble, Ivy and Rose growing through the established Hawthorns. The hedge is approximately 2.5/3m in width and appears to have been historically managed at 2m in height.	Manage the element to become a more formal hedge.	>20	B2	Constrained within the canopy
H2	Semi Mature	Hawthorn (*Crataegus*)	2/2.5	<75	N/A	0	0	Normal	A younger and more fragmented hedge element than H1 however less secondary species was observed. Hedge lacks any form of recent management.	Prune element to become a more formal hedge. Replant in gaps.	>10	C2	Constrained within the canopy

Appendix C: Statutory Protection



Screen Shot 1: An image lifted from the Barnsley Council Website on the 8th of May 2024 showing that the site is not located with a Conservation Area and that no TPO designations are present.



Station	Easting	Northing	Level
S1	5201.477	4936.531	101.849
S6	5161.574	4848.344	112.509
S7	5176.796	4883.017	109.845
S8	5134.862	4908.120	106.825
S9	5162.241	4932.868	103.800
S10	5251.363	4919.528	105.068
S11	5212.823	4876.060	108.419
S12	5196.040	4852.707	110.594

Haycock+Todd
Land Survey Consultants Architectural Surveyors
The Hollies, 43 Church Street, Royston, Barnsley, S71 4QU. T:01226 709630
E:info@land-surveying.co.uk W:land-surveying.co.uk

SITE SURVEY

HAWSHAW BANK
HOYLAND

Sheet 1 of 1	Surveyed by DR
Datum	Drawn by DR
GRID– Related to previous survey.	Date of Survey March 2024
	Scale 1/200
LEVEL– Related to previous survey.	Survey Job No. S10466

LEGEND

Manhole shown thus	MH
Inspection Cover	IC
Lamp post	LP
Gully	G
Lampost	LP
Telegraph Pole	TP
Electricity Pole	EP
Road Traffic Signs	RS
Traffic Lights	TL
British Telecom	BT
Cable Television	CATV
Fire Hydrant	FH
Safety Valve	SV
Stop tap Water	W
Stopcock Gas	Gas
Unknown Stoptap	ST

Floor Level	FL 10.907
Height floor to ceiling	C 2.22
Height floor to struct soffit	SS 2.87
Height floor to false ceiling	FC 2.22
Height floor to sill	S0.67
Height sill to window head	W1.23
Height of Door	D1.98
Height floor to underside	US 3.61
Ceiling Slopes Up	csu →
Height floor to Arch	Ar2.99
Height floor to Arch Spring	Sp2.67
Vent	VP
Fall Pipe	FP
Sky Light	SL
Water Closet	WC
Sink	S
Boxed Column	B

KEY TREE SOLUTIONS
ARBORICULTURAL CONSULTANTS

KEY- **Arboricultural Survey and Constraints Plan**
(to be read in conjunction with report ref. HSBB01-24)

Tree surveyed by Key Tree Solutions - location of tree centre from topographic survey

Tree surveyed by Key Tree Solutions - tree location approximated by surveyor

Categories (BS 5837:2012)

Category A Elements

Category B Elements

Category C Elements

Category U Elements

Root Protection Area (RPA)

Site Location	
Hawshaw Bank, Barnsley, South Yorkshire, S74 9ND	Key Tree Solutions Rolys Cottage, YO61 2QY Tel. 07716 638 613 www.KeyTreeSolutions.co.uk

Job

BS5837 Arboricultural Survey & Impact Assessment

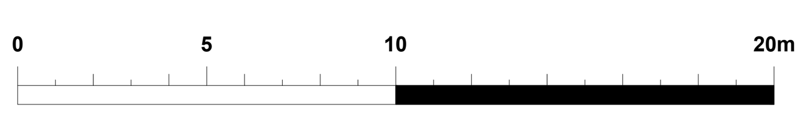
Title

Appendix D:
Arboricultural Constraints Plan

Drawn by	Date	Scale @ A3	Drg. no.
L Smith	**May 2024**	**1:500**	**1/1**

Proposed Site Plan

redesign by Oak & Prosper



Note

Design on this drawing is based on the proposal produced by Low Farm Properties for the site at Hawshaw Close, Platts Common, Barnsley under drawing refs:
LFP/HC/SL/01
LFP/HC/B/01
LFP/HC/C/01
LFP/HC/S/01
LFP/HC/W/01
Proposals provided have adapted the layouts portrayed across the above drawings to meet the client's brief and generate a positive and viable scheme on which Planning permission is to be obtained. The layouts put forward work to the constraints of the site and allow for the significant change in level, as documented within supporting drawings and documents.

Key

For cross sections (as indicated through section line on site plan opposite) refer to drawing 03-010.

A hard and soft landscaping strategy has been identified across the proposed site plan to indicate how both the public and private spaces will be provided. Hard standing has been kept to a minimum where possible to allow additional grassed area and planting to be provided. Additionally, tree planting has been proposed where possible to soften the new build street scenes.

Materials proposed to be used consist of the following:
- Tarmacadam surface to adopted roads and footpaths
- Tarmacadam surface to private driveways
- Concrete paving slabs to footpaths and private patios (to rear)
- Rear gardens are to be provided with lawn turf
- Front gardens will be provided as grass and low level shrubbery

Rev	Date	Description	Drn	Chk
P3	2024-03-21	Plot numbers changed and annotation included	CY	CY
P2	2024-03-17	House type name changed	CY	CY
P1	2024-03-15	Initial issue	CY	CY

Project

Hawshaw Bank S74 9ND

Hoyland Barnsley

ANS Construction Ltd

Drawing Title

Proposed
Site Layout

Scale	1:200 @ A1
Date	March 2024
Purpose	Planning
Job No.	032024
Drawing Ref.	032024.OP.FS.ZZ.DR.A.01.010
Revision	P3

Do not measure from this drawing and use figured dimensions only. The associated bar included is to check the drawing has been printed to scale only. The contractor is to check all dimensions and report any discrepancies to Oak and Prosper Construction. Feasibility schemes may be based on plan data obtained by unknown sources and are subject to further surveys being commissioned. All proposals are subject to statutory approvals. Declared areas are liable to change over the course of the design process.

Oak and Prosper Construction Limited is a limited company registered under company number 09963316 whose registered office is The Hart of Barnby Dun, Top Road, Barnby Dun, DN3 1DA.
Email: contact@oakandprosper.co.uk Tel: 01302 247 120

OAK & PROSPER

Appendix E: Images

FIGURE 1. H1 running along the southwestern boundary.

FIGURE 2. H2 running along part of the southeastern boundary.