ADRIAN HOPE
TREE SERVICES

ARBORICULTURAL IMPACT ASSESSMENT

Ref: 12997

REGARDING PROPOSED DEVELOPMENT WITHIN THE CURTILAGE OF BREDENBURY COURT, BROMYARD, HEREFORDSHIRE

Prepared on behalf of: Mr Simon Steel

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CONTENTS

		Page
1	Summary	1
2	Introduction	3
3	Arboricultural Implications Assessment	6
4	Conclusions	11

Appendices

Appendix 1	Arboricultural Assessment	12
Appendix 2	Husbandry Recommendations	17
Appendix 3	Tree Constraints Plan	19
Appendix 4	Arboricultural Impacts Plan	21

1 Summary

The purpose of this report is to provide a preliminary consideration of the arboricultural implications created by the proposed development. In accordance with BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations", trees standing both within the curtilage of the site and off-site trees within 12x their stem diameter of the site have been assessed in accordance with the requirements of BS5837:2012.

In this instance, it is proposed to remove the existing sports hall and replace it with an oak framed building within the curtilage of Bredenbury Court. The arboricultural implications of the proposal are as follows:

Impact	Trees Affected	Proposed Mitigation	Level of Impact
Trees felled	None	N/a	N/a
Removal of structures / hard surfaces within RPA	T3 & T6	Controlled removal of hard surfacing	Very low
Building within RPA	T3 & T6	Manual excavation	Very low
Hard surfaces within RPA	T1 – T5 & T18 – T27	No-dig construction	Very low

Table 1: Summary of potential impacts

Given the above, there are no overt or overwhelming arboricultural constraints that can be reasonably cited to preclude the proposed construction. The proposed design has taken into consideration the constraints of the existing trees and has sought to integrate them as an integral feature of the site.

2 Introduction

2.1 Terms of Reference

2.1.1 I have been instructed by Mr Simon Steel with regard to a planning application to be made in respect of the demolition of the existing sports hall building and replacement with an oak-framed structure to report on the following in full accordance with British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations. To that end, my instructions are to:

i) Carry out site visit inspecting all trees likely to be affected by the proposed development

ii) Produce an Arboricultural Impact Assessment and associated Arboricultural Implications Assessment Plan

2.1.2 I have been provided with and relied upon the following information in the production of this document:

- Topographical survey ref: 1680 Site Plan ‘as existing’
- Proposed site layout ref: 1680 Site Plan ‘as proposed’

2.2 Scope of Survey

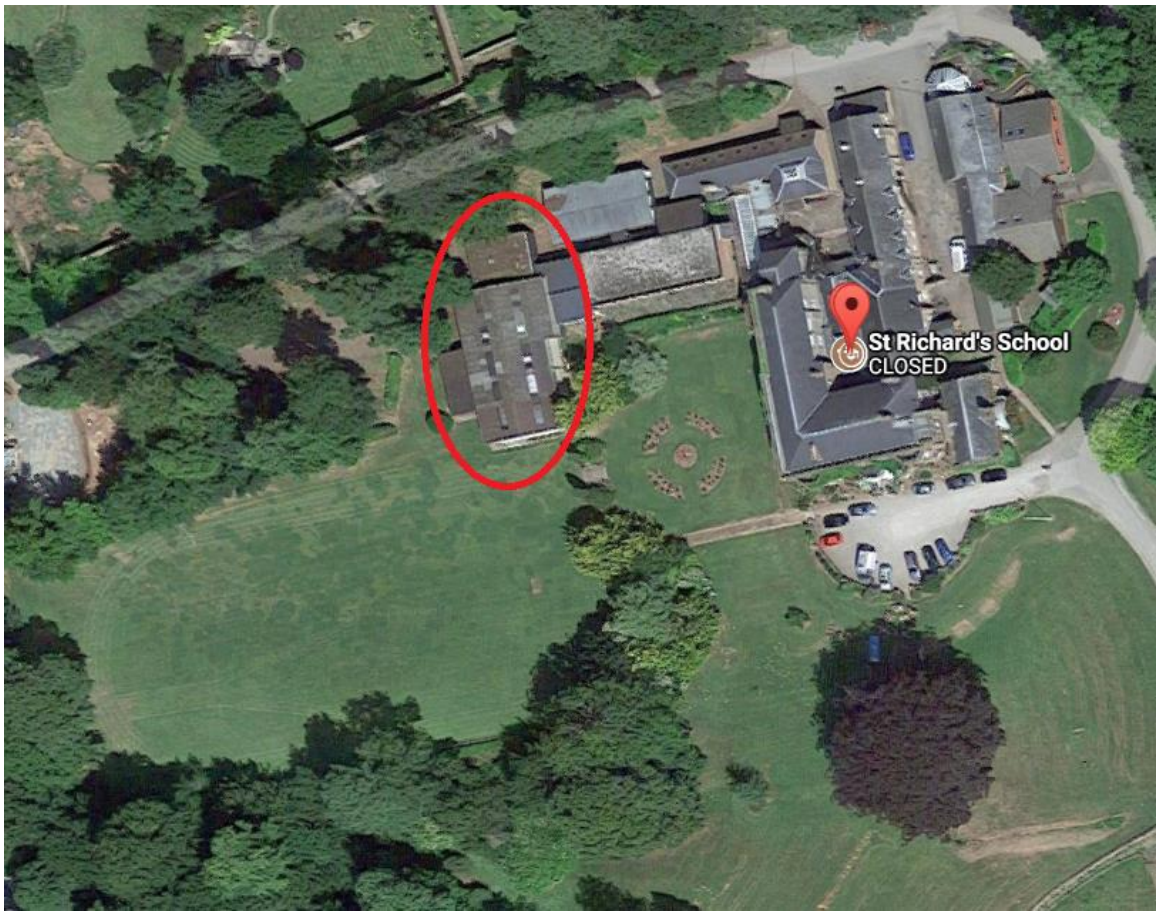
2.2.1 As Adrian Hope Tree Service's arboricultural consultant I visited the site on 11th August recording relevant qualitative data in order to assess the condition of the trees present and any constraints they may pose to development in accordance with BS5837: 2012.

2.2.2 The survey of the trees, soils and any other factor is of a preliminary nature. The trees were surveyed on the basis of the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994). The trees were surveyed from ground level only with no climbing inspections undertaken. It is not always possible to access every tree and as such some measurements may have to be estimated. Where this has been necessary, it will be highlighted in Appendix 1. No samples have been removed from the site for analysis. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

2.2.3 An intrinsic part of tree inspection in relation to development is the assessment of risk associated with trees in close proximity to persons and property. Most human activities involve a degree of risk with such risks being commonly accepted, if the associated benefits are perceived to be commensurate. In general, risks relating to trees tend to increase with the age of the trees concerned, as do the benefits. It will be deemed to be accepted by the client that the formulation of the recommendations for all the management of the trees will be guided by the cost-benefit analysis (in terms of amenity), of the tree work that would remove all the risk of tree related damage.

2.2.4 Trees are living organisms whose health and condition can change rapidly; the health, condition and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations in this report are only valid for a period of one year. The period of validity may be reduced in the case of a change of conditions to or in proximity to the tree.

2.3 The Site



Photograph 1: Aerial view of application site with sports hall circled
(Source: Google Maps)

2.3.1 Bredenbury Court comprises an 18th-century house with 19th-century grounds featuring serpentine walks, shrubberies and a lake. It was formerly used as St. Richards School, an independent day and boarding school.

2.3.2 The sports hall stands some distance from the main building but is connected to a series of classrooms. There are significant level changes around the sports hall and classrooms with existing hard standing to the west of the sports hall.

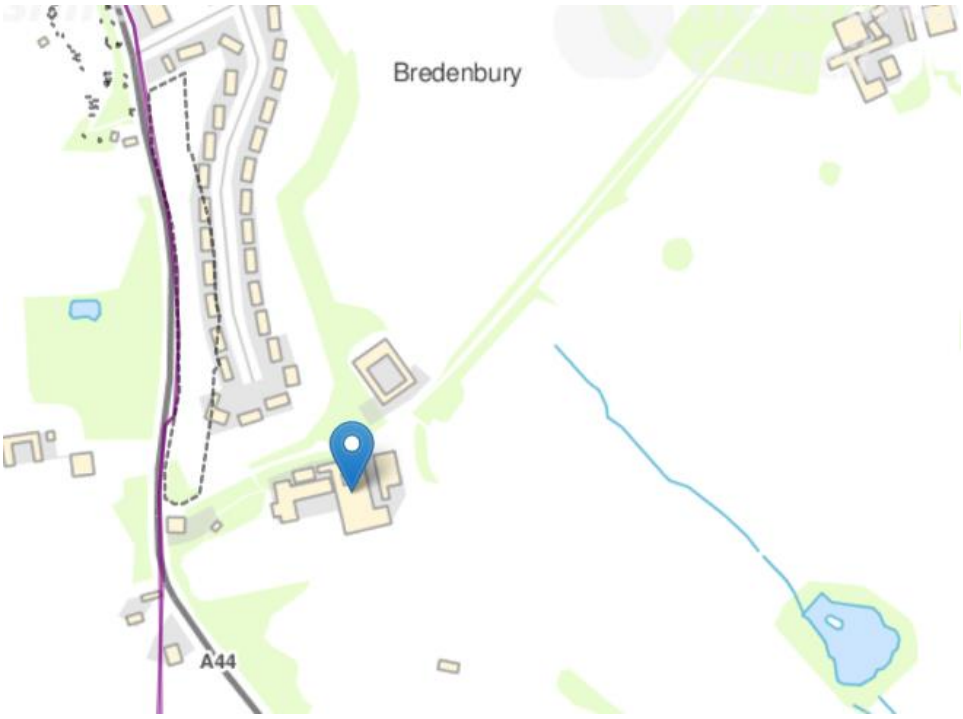
2.4 Subject Trees

2.4.1 A total of 26 individual trees and 1 small group of trees were surveyed, of which 3 are of high quality (A category), 14 are of moderate quality (B category), 9 are of low quality (C category) and none are unsuitable for retention (U category).

2.4.2 The species present consist of Austrian pine, English elm, wellingtonia, common yew, holly, juniper, cut-leaf beech, common ash, laburnum, tulip tree, cypresses, golden yew, western red cedar, common beech, monkey puzzle and English oak.

2.5 Statutory Tree Protection

2.5.1 Information available on Hereford Council's administrative map indicates that while there is an adjacent Tree Preservation Order, there are none in place on any tree on the site nor does it lie within a Conservation Area.



Extract 1: Adjacent TPO shown by broken black line

3 Arboricultural Implications Assessment

3.1 Above and Below Ground Constraints

3.1.1 The constraints trees can pose to development can be broadly grouped as being above or below ground. Above ground constraints primarily consist of the current and ultimate height and spread of the trees with species characteristics such as susceptibility to honeydew drip, branch drop *etcetera* also forming a consideration.

3.1.2 Below ground constraints comprise the Root Protection Area (RPA) around each retained tree. Paragraph 4.6.2 of BS5837: 2012 states that this is calculated as an area equivalent to a circle with a radius 12 times the stem diameter. It must be remembered that the circular RPA put forward in the British Standard is a notional representation of the minimum area to be protected rather than an accurate representation of where the roots are likely to be found.

3.1.3 Paragraph 4.6.2 of the British Standard states that where pre-existing site conditions or other factors indicate that rooting is likely to have occurred asymmetrically, a polygon of equivalent area shall be produced that reflects a soundly based arboricultural assessment of the likely root distribution.

3.1.4 Whilst the Standard comments that the default position should be that structures are located outside the RPAs of trees to be retained, it also recognises (paragraph 5.3.1) that technical solutions such as low-invasive foundations are available that enable construction to occur within RPAs without damage to trees.

3.1.5 The quality of the tree in question will also have a bearing on the significance of the constraint it poses. Ordinarily, only moderate quality (category B) and above trees will pose a constraint to development although the removal of significant numbers of low quality (category C) trees may pose a constraint in certain circumstances.

3.1.6 On this site, the primary arboricultural constraints to development of the site arise from the RPAs of the high and moderate quality trees present. It should be noted however that the previous building works and level changes will have resulted in historic root disturbance to those trees meaning that further works beyond the level changes are unlikely to result in injury to the trees.

3.2 Arboricultural Impacts of Proposals

3.2.1 The principal impact of the proposals comprises the increase of the built footprint within the RPA of T3 from 122.4sqm to 148.8sqm. This 26.4sqm increase equates to 3.7% of the total area and is assessed as being likely to be of very low impact to the tree. The existing level changes and historic building works in this area mean that the impact may very well be theoretical only, it is highly likely that the ground works for the existing sports hall severed any roots present in the proposed footprint. Notwithstanding this, it is proposed to manually excavate the outer limits of the increased footprint within the RPA of T3 in conjunction with pre-emptive root pruning to mitigate this potential impact.

3.2.2 The existing significant level changes between T6 and the increased footprint mean that any impact to the tree on plan is theoretical only.

3.2.3 The demolition of the sports hall has the potential to impact upon T3 in particular but also other adjacent trees and for this reason it will be necessary to adopt a 'top-down, pull-back' approach working away from the trees. Subject to the adoption of this methodology, impacts are likely to be negligible.

3.2.4 The proposed new car parking and hard surfacing within the RPAs of T1 – T5 and T18 – T27 are not likely to result in damage to those trees given the existing hard standing already present. For this assessment to stand, it will be necessary to employ the existing sub-base with minor augmentation as necessary and utilise a porous finished surface.

3.3 Infrastructure Requirements

3.3.1 The installation of services within the rooting zones of trees can have a large detrimental impact on the long-term survival of retained trees leading to their unnecessary loss or root failure in high winds. Services within any retained tree's RPA will require installation in line with the provisions of NJUG Vol.4 and BS5837: 2012.

3.4 Proximity of Structures to Trees

3.4.1 Whilst the replacement structure is undoubtedly close to T3, it does not alter the current situation and thus it highly unlikely that otherwise unnecessary tree pruning or removal will result from the proposal. The non-residential nature of the building further reduces the potential for post-development conflict.

4 Conclusions

4.1 The potential impacts of development are all very low in terms of level of encroachment into retained trees RPAs; no trees are to be removed to facilitate the proposals.

4.2 The affected trees are generally tolerant of root disturbance / crown raising and as such capable of sustaining these low impacts without significant effect on long-term health and growth.

4.3 Therefore, the site has the potential to be developed in line with the proposals with no significant impact to the retained trees or the wider area.

Appendix 1 – Schedule of Tree Condition and Retention Category

Tree ref on plan	Species	Ht (m)	Crown spread (M) NESW	Trunk Dia @ 1.5m (mm)	RPA radius (m)	Ht of lowest branch (M)	Age class	Life expectancy (years)	Physiological and Structural condition. Observations- negative and positive	Category of retention
T1	Austrian pine	20	5555	860	10.32	6	M	>40	P = Good S = Good	A2
T2	English elm	12	4444	180	2.16	1	Y	10-20	P = Good S = Good ▪ No sign of Dutch Elm Disease at present	C2
T3	Wellingtonia	26	7777	2000	15.00	2	M	>40	P = Good S = Good ▪ Previous construction activity / level changes within RPA	A2
T4	Austrian pine	22	4444	920	11.04	15	M	20-40	P = Good S = Fair ▪ Major deadwood throughout crown and threatening drive	B2
T5	Common yew	7	5555	280	3.36	1	M	>40	P = Fair S = Fair ▪ Crown sparser than normal	C2
T6	Austrian pine	24	9999	1020	12.24	4	M	>40	P = Good S = Good	A2
T7	Common yew	16	8888	580	6.96	1	M	>40	P = Good S = Good	B2

Tree ref on plan	Species	Ht (m)	Crown spread (M) NESW	Trunk Dia @ 1.5m (mm)	RPA radius (m)	Ht of lowest branch (M)	Age class	Life expectancy (years)	Physiological and Structural condition. Observations- negative and positive	Category of retention
T8	Common yew	14	6666	300	3.60	1	M	>40	P = Good S = Good	B2
T9	Holly	5	3333	100	1.20	0	MA	10-20	P = Good S = Good ▪ Poor form due to suppression	C2
T10	Juniper	5	1111	85	1.02	1	M	10-20	P = Fair S = Fair ▪ Collapsed stem	C2
T11	Common ash	17	8888	800	9.60	1	M	>40	P = Good S = Good ▪ Minor deadwood throughout	B2
T12	Laburnum	6	2222	180	2.16	1	MA	20-40	P = Good S = Fair ▪ Multi-stemmed weakness at base	C2
T13	Cut-leaf beech	14	7777	200	4.48	2	M	>40	P = Good S = Fair ▪ Multi-stemmed weakness at base	B2
T14	Tulip tree	14	3333	310	3.72	2	MA	20-40	P = Good S = Fair ▪ Decay at base	C2

Tree ref on plan	Species	Ht (m)	Crown spread (M) NESW	Trunk Dia @ 1.5m (mm)	RPA radius (m)	Ht of lowest branch (M)	Age class	Life expectancy (years)	Physiological and Structural condition. Observations- negative and positive	Category of retention
T15	Cypress	10	5555	580	6.96	3	M	20-40	P = Fair S = Fair ▪ Sparse crown ▪ Crack in main stem	C2
T16	Golden yew	8	5555	390	4.68	2	M	>40	P = Good S = Good	B2
T17	Golden yew	8	5555	390	4.68	2	M	>40	P = Good S = Good	B2
T18	Western red cedar	20	4444	1600	15.00	3	M	20-40	P = Fair S = Good ▪ Sparse crown	B2
T19	Lawson cypress	18	3333	420	5.04	3	M	20-40	P = Good S = Good	B2
T20	Common beech	17	7777	580	6.96	2	MA	>40	P = Good S = Good	B2
T21	Monkey puzzle	18	5555	640	7.68	5	M	>40	P = Good S = Good	B2
G22	Lawson cypress	20	3333	430	5.16	3	M	20-40	P = Good S = Good	B2

Tree ref on plan	Species	Ht (m)	Crown spread (M) NESW	Trunk Dia @ 1.5m (mm)	RPA radius (m)	Ht of lowest branch (M)	Age class	Life expectancy (years)	Physiological and Structural condition. Observations- negative and positive	Category of retention
T23	Lawson cypress	19	4444	520	6.24	1	M	20-40	P = Good S = Good	B2
T24	English oak	17	10/2/ 10/7	730	8.76	5	M	20-40	P = Fair S = Fair ▪ Decay at base ▪ Soil levels built up around base ▪	B2
T25	Holly	14	6666	320	3.84	2	M	>40	P = Good S = Good ▪ Poor form	C2
T26	Lawson cypress	18	4444	430	5.16	2	M	20-40	P = Good S = Good ▪ Dead subsidiary stem leaning toward drive ▪	B2
T27	Holly	14	5555	320	3.84	1	MA	20-40	P = Good S = Fair ▪ Multi-stemmed weakness at base	C2

Key:

Age Class: **Y M**- Young (1st 1/3rd of life expectancy) **MA** - Middle aged (2nd 1/3rd of life expectancy**)** **M** - Mature (final 1/3rd of life expectancy)
OM - Over mature (beyond life expectancy and declining naturally) **V –** Veteran (of great age for its species and possibly of conservation value)

Condition: **P** = Physiological **Good** – no significant health problems **Fair** – symptoms of ill health that can be remediated **Poor** – significant ill health
S = Structural **Good** – no significant defects **Fair** – significant defects that can be remediated. **Poor** – Significant defects no remedy

Category of retention: **U** – Unsuitable for retention regardless of development **A** - High quality value **B** - Moderate quality value **C** - Low quality value

1 – Mainly arboricultural qualities **2** – Mainly landscape qualities **3** – Mainly cultural values, including conservation

RS = Remote Survey Only

Appendix 2 – Husbandry Recommendations

Tree ref on plan	Species	Ht (m)	Age class	Life expectancy (years)	Category of retention	Observations	Recommended Husbandry Works
T4	Austrian pine	22	M	20-40	B2	Major deadwood throughout crown and threatening drive	Remove major deadwood within 6 months
T24	English oak	17	M	20-40	B2	Decay at base; soil built up around base	Carefully remove soil build up within 3 months; monitor future condition
T26	Lawson cypress	18	M	20-40	B2	Dead subsidiary stem leaning toward drive	Fell dead stem within 6 months

Appendix 3 – Tree Constraints Plan

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Key:

- Category A tree
- Category B tree
- Category C Tree
- Category C Tree

Canopy Extent
Retention Category
Root Protection Area

Site: Bredenbury Court

Client: Mr S Steel

Drawing Title:
Tree Constraints Plan

Date: August 2017

Scale: 1:200 @ A1

T14
Tulip Tree

T12
Laburnum

T13
Beech

T11
Ash

T10
Juniper

to north lodge entrance
off Worcester Road (A44)

T7
Yew

T9
Holly

T6
Pine

T8
Yew

T4
Pine

T27
Holly

T5
Yew

T25
Holly

T26
Cypress

T1
Pine

T2
Elm

T24
Oak

T3
Wellingtonia

T23
Cypress

G22
Cypress

T21
Monkey
Puzzle

car park

T18
Cedar

T19
Cypress

T20
Beech

bredenbury
court

car park/
drop off

T17
Yew

T16
Yew

T15
Cypress

Appendix 4 – Arboricultural Impact Plan

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Key:

- Category A tree
- Category B tree
- Category C Tree
- Category C Tree
- Canopy Extent
- Retention Category
- Root Protection Area
- Tree to be felled

Site: Bredenbury Court

Client: Mr S Steel

Drawing Title: Arboricultural Impact Assessment

Date: August 2017

Scale: 1:200 @ A1

T24 Oak
T23 Cypress
G22 Cypress
T21 Monkey Puzzle
T25 Holly
T26 Cypress
T27 Holly
T1 Pine
T2 Elm
T4 Pine
T5 Yew
T6 Pine
T7 Yew
T8 Yew
T9 Holly
T10 Juniper
T11 Ash
T12 Laburnum
T13 Beech
T14 Tulip
T15 Cypress
T16 Yew
T17 Yew
T18 Cedar
T19 Cypress
T20 Beech
T3 Whitebeam

to north lodge entrance off Worcester Road (A44)

staff and overflow north car park 27 no.

approx.location of heat exchange/ air conditioning units

location of waste and recycle storage

staff car par 4 no.

location of waste and recycle storage

main entrance drive bridal / VIP car drop off

th lodge