Treework Environmental Practice

Arboricultural Impact Assessment

Jerrings Hall Farm

Report Reference Number: 200604-1.2-JFH-AIA-MW

On behalf of

Sanderson Weatherall LLP

4th June 2020

Document Control Sheet

Project Name: **Jerrings Hall Farm**

Report Ref: **200604-1.2-JHF-AIA-MW**

Report Title: **Arboricultural Impact Assessment**

	Name	Position	Date
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Revision	Date	Description	Prepared by
1.0	05/03/2020	Draft	MW
1.1	22/05/2020	Additional drainage detail and fencing detail added	MW
1.2	04/06/2020	Minor alteration to Tree Protection Plan	MW

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Executive Summary

- This report provides an assessment of trees and the impact of the proposed redevelopment of the site, which is for the relocation of a special needs school including conversion works, internal and external alterations to the listed buildings, the installation of two single storey modular buildings, construction of car park, taxi drop-off and waiting area, infrastructure works and associated landscaping. The report makes recommendations for mitigating any negative impacts and is suitable for submission in support of a planning application.

- The design has been developed with careful consideration to minimise the impact on the most important trees across the site.

- 46 trees and 11 tree groups were surveyed across the site. The data for each is presented within the Tree Schedule at Appendix A.

- 13 trees, 1 tree group (G47) and 1 part group (G50) have been identified for removal to facilitate the development, 1 of which is category B, and 4 are category C. T47 has also been identified for removal. This is a U category mature Ash on the highway boundary, with extensive defects.

- The remaining tree features will be retained and integrated into the development. Sufficient space and adequate protection measures have been set out to ensure that retained trees are not damaged during the pre-construction and construction phase and to enable their successful development post-construction. Retained tree protection measures are discussed throughout this report and illustrated on the Tree Protection Plan at Appendix B.

- 2 trees and 1 hedge (T48, T49, H51) will be subject to drainage runs within their root protection areas. This is discussed in more detail in section 3 of this report and illustrated on the Tree Protection Plan at Appendix B.

- T46, T39 and T37 will be subject to excavation and installation of hard surfacing at the edge of the RPA. This is discussed in more detail in section 3 of this report and illustrated on the Tree Protection Plan at Appendix B.

- 6 retained trees, along the avenue (T35, T36, T37, T39, T40 and T41) will require remedial tree work to facilitate post development emergency access of high vehicles (fire engine). This will comprise of crown lifting over the existing driveway to achieve a 3.5m clearance. These works are detailed in the Tree Schedule at Appendix A.

1 Introduction

1.0 Brief and Context

1.0.1 Treework Environmental Practice was instructed by Sanderson Wetherall LLP on 10 February 2020 to provide an Arboricultural Impact Assessment, in accordance with British Standard BS5837: 2012 Trees in *Relation to Design, Demolition and Construction – Recommendations*, of the effect of development proposals on trees at the Jerrings Hall Farm site.

1.0.2 Trees are a material consideration for a Local Planning Authority when determining planning applications, whether or not they are afforded the statutory protection of a Tree Preservation Order or Conservation Area. British Standard BS 5837:2012 *Trees in Relation to Design, Demolition and Construction* sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and new developments. The Standard recommends a sequence of activities that starts in the initial feasibility and design phase (RIBA Stage 2 'Concept Design') with a survey to qualify and quantify the trees on site and establish the arboricultural constraints to development (above- and below-ground) to inform the design in an iterative process, and continues with an assessment of the arboricultural impacts of the final design and measures to mitigate such impacts should they be negative. Detailed technical specifications for mitigation and protection measures are devised in the design phase that follows (RIBA Stage 3-4 'Developed and Technical design'), and the sequence ends with the Implementation and Aftercare phase (RIBA Stages 5-7) with the implementation of those measures once planning permission is granted, guided by Arboricultural Method Statements (RIBA Stage 4-5, 'Technical Design and Construction) and professional guidance where appropriate.

1.0.3 This Arboricultural Impact Assessment (AIA) reports on the direct and indirect impacts of the proposed development on trees in terms of both the buildability of the proposals and the long-term impact of the finished scheme, and where necessary presents mitigation for these impacts.

1.1 Purpose of this Report

1.1.1 This AIA, and accompanying Tree Schedule and Tree Protection Plan, is provided to support a planning application for the proposed development. It sets out the arboricultural impacts of the proposals using the following considerations as a framework:

- Trees to be removed and trees to be retained.
- Remedial tree work to retained trees to allow development and ensure retained trees will form a harmoniously integrated component of the proposed development.
- Suitable measures to protect retained trees.

- Special construction or engineering measures required to enable trees to be harmoniously integrated into the proposed development.

1.2 The Development

1.2.1 The proposed development is for the redevelopment of the site for the relocation of a special needs school including conversion works, internal and external alterations to the listed buildings, the installation of two single storey modular buildings, construction of car park, taxi drop-off and waiting area, infrastructure works and associated landscaping

1.2.2 The following documents have been reviewed by Treework Environmental Practice to inform this report:

Document Title	Document/Drawing number	Originator
Topographical Survey	16-024-Jerrings-Hall-Farm-Site-Survey-March-2016	Beacon Land Surveys
Proposed Layout	1831-CMS-SP-00-DR-A-0002-A	CMS Architects
Tree Constraints Plan	180918-1.0-JHF-TCP-MM	Treework Environmental Practice

2 Existing Tree Population and Constraints

2.0.1 A survey covering trees on site and trees on adjacent land close enough to be affected by the development was undertaken on 14 September 2018. The full survey results are presented in the Tree Schedule at Appendix A.

2.0.2 The survey was undertaken based on trees plotted using an outline base map as reference in Treework Environmental Practice's specialist tree management software – MyTrees. The basemap contained a topographical survey of the trees. Trees and hedges were plotted on the basemap using the topographical survey as reference.

2.0.3 The proposed development site currently houses Jerrings Hall Farm with landscaped gardens and adjacent paddocks. Trees are of various species and age, with a distinctive avenue along the driveway.

2.0.4 BS 5837:2012 recommends classifying trees into four quality and value categories to determine their relative retentive worth. A summary of the relative retentive worth of the trees on site as recorded during the tree survey and expressed by their categories is given in Table 1. Appendix A explains the BS 5837:2012 tree categorisation process.

Table 1: Trees/Groups in each Retention Category

BS Category	No. of Trees (T)	No. of Groups (G)	No. of Hedges (H)	Total
A	4	0	0	4
B	15	3	3	21
C	26	3	2	31
U	1	0	0	1
Total	**46**	**6**	**5**	**57**

2.0.5 Trees present constraints to development both above and below ground. The above ground constraints comprise the physical extent of tree crowns. The below ground constraints comprise the roots and are expressed in terms of the root protection area (RPA), which is the minimum rooting area that a tree needs to sustain itself in reasonable health. These constraints, as established by the tree-survey, inform this assessment of the impact of the development proposals.

2.0.6 The full results of the tree survey on which this report is based are given in the Tree Schedule at Appendix A, and the above- and below-ground constraints are illustrated on the Tree Protection Plan at Appendix B. Each tree (T), tree group (G), and hedge (H) has been allocated an individual number to which it is referred in this report and all associated documents. The survey method and limitations are set out in Appendix E.

3 Arboricultural Impact of the Proposals

3.0 Tree Removal and Retention

3.0.1 Every effort has been made to retain trees wherever possible. Where high-quality trees have been found to be in conflict with the proposed design, the decision to remove such trees has been informed by an iterative process, following a review of alternative options.

3.0.2 The 13 trees, G24 and 4 trees from G50 proposed for removal and the 'U' category tree (T47 recommended for removal to facilitate the development are summarised in Table 2 by BS5837: 2012 category. Trees have been identified for removal where they come into direct conflict with structures, where construction cannot be achieved without their removal, or where their future relationship with the development is considered unsustainable, having regard to their eventual potential size. All Category U trees should be removed due to their poor condition, which would be advisable regardless of the development proposal. Where higher value trees may be in minor conflict with the proposals, pruning or special construction and protection measures have been specified, as explained in Section 3.4.

Table 2 – Tree Features for Removal by BS Category

Category A Trees/Groups/Hedges	Category B Trees/Groups/Hedges	Category C Trees/Groups/Hedges	Category U Trees/Groups/Hedges
None	T2, T11, T21, T20, G24, T15 *+ 4 trees from G50	T44, T45, T42, T38 (re-generated stump), T26, T27	T47
0	**6 + 4 trees from G50**	**5**	**1**

3.0.3 All trees other than those in Table 2 will be retained and protected during development (see section 3.3).

3.1 Facilitative Tree Works

3.1.1 Trees which extend over the avenue and car park access will need crown lifting to facilitate larger vehicles and in particular, emergency vehicles such as fire engines. This means trees; T35, T36, T37, T39, T41 and T40 will all need selective crown lifting over the access drive to a height of 3.5m from ground level. This work will be undertaken to industry best practice BS3998:2010.

3.1.2 Existing garden trees to the west, near to the fencing alignment may need minor pruning work to facilitate a palisade fence. If this work is required, the following criteria will be followed.

- All works will be undertaken in accordance with BS3998:2010 *Tree Work Recommendations.*
- No branches above 50mm diameter will be removed.
- Works will be undertaken sensitively, ensuring the amenity value of each tree is not significantly reduced.
- Post holes for the fencing within the RPA of retained trees, will be hand dug and the holes will be lined with a non-permeable membrane before concreting in place, to avoid contamination of the soil and rooting environment.

3.2 Underground Service Routes

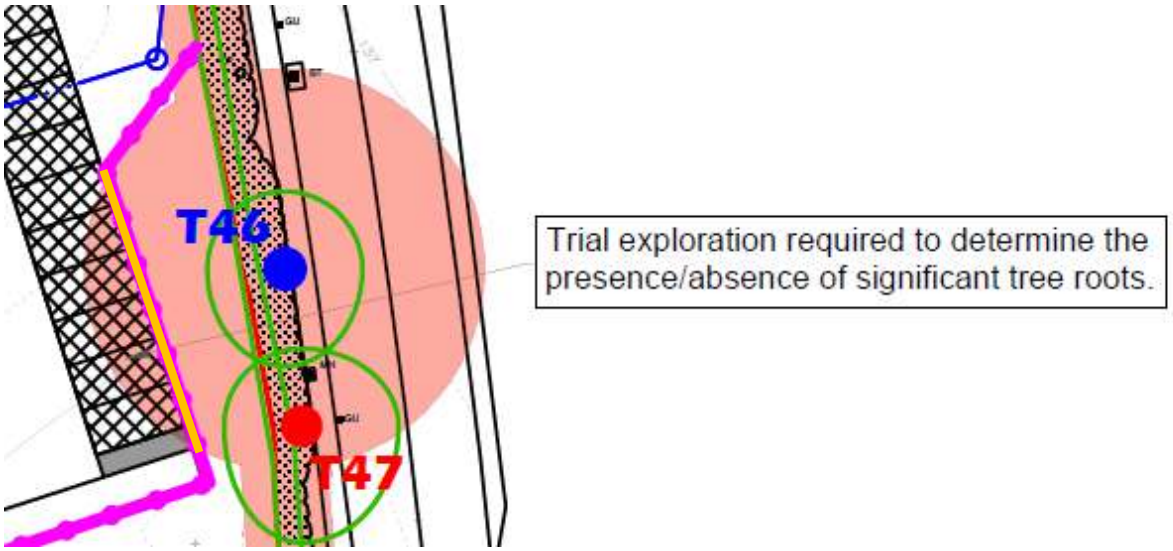
3.2.1 The position of proposed underground services currently clashes with several trees. T42, a 'C' category *Prunus sp.* T26 a 'C' category *Cupressus* and T27 a 'B' category *Acer pseudoplatanus* are proposed for removed to facilitate the drainage. The roots of T27 are also currently impacting existing drainage and a new drainage run is proposed in the RPA. To repair this damage and install new drainage will impact the roots of the tree, therefore removal and replacement elsewhere on the site, is recommended.

3.2.2 H51 currently has a drainage run proposed within their RPA. This can be micro-tunnelled below, assuming the depth of the drainage is + 600mm. This will avoid removing a section of hedgerow, which is an important boundary and screening characteristic of the site.

3.3.4 Proposed drainage arrangements within the edge of the RPA of T49 & T48 is considered to be minimal and not likely to impact these trees, providing the tree protection fencing has been installed and is maintained in good condition, whilst the adjacent works take place.

3.3 Car Park Excavation and Surfacing within the RPA of T46

3.3.1 The car park proposal is within 9.5% of the RPA of T46. It is recommended to undertake an exploratory hand dig trench along the outside footprint of the car park, area which conflicts with the RPA. This trench should be 600mm deep and undertaken under the watching brief of an Arboricultural Consultant. If significant roots are present, this area of the car park should be constructed using a no-dig design and a 3 dimensional cellular confinement system, or re-configured outside of the RPA. The recommended trial trench location is shown in yellow below.



3.3.2 The car parking access route, also conflicts with a small section of the RPA of retained trees T39 and T37. It is recommended that Initial excavation works are overseen by an arboriculturist, to determine the presence/absence of significant roots. If significant roots are exposed >25mm diameter, a 'no-dig' solution comprising a 3 dimensional cellular confinement system as a base material will be specified.

4.0 Tree Protection

4.0.1 ***Root Protection Areas and Construction Exclusion Zones***

Retained trees will be protected during development by establishing a Construction Exclusion Zone (CEZ) around their Root Protection Areas (RPAs). RPAs are a layout design tool, indicating the minimum area around a tree deemed to contain sufficient roots and soil to maintain the tree's viability. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of materials, ground level changes and other construction activity are likely to cause damage to trees and should therefore be excluded. This CEZ can be achieved by the erection of barriers at the locations shown on the Tree Protection Plan at Appendix B. Tree protection barriers must be installed before any demolition or construction works start, and, unless approved by the Local Planning Authority or by an arboriculturist approved by them, should remain in place until all construction activity has been completed.

4.0.2 The type of barriers should match the level of activity around the retained trees. Where a high level of construction activity is expected, fencing must be braced to be robust to vehicular impact and to prevent it from being easily repositioned; a specification similar to drawing 3 in BS 5837:2012 will be suitable (reproduced at Appendix D). In areas away from the main

construction activity and vehicle movement, it may be appropriate to install a lower specification fencing, examples of which are given at Appendix D.

4.0.3 All protection fencing should carry identifying signs that state its purpose and proscribe its removal until all demolition and construction work is complete. An example sign is given at Appendix D.

5.0 Additional Precautions

5.0.1 **Earthworks**

Any earthworks associated with the project, for example regrading of the car park area , should only be undertaken, once exploratory works near T46 have been undertaken and all tree protection barriers have been installed.

5.0.2 **Soft Landscaping**

The Arboricultural Consultant should review any landscape operations that involve any work within the RPAs of retained trees and input additional site specific methodology where necessary.

Appendix A

Tree Schedule

Jerrings Hall Farm, Dickens Heath, B90 4DX
Tree Survey BS5837-2012

Treework Environmental Practice

Tree/Group Reference	Tree Count	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T1	1	*Quercus robur* English Oak	12.0	1	38	N E S W 5.0 5.0 4.0 5.0	1.5		Early Mature	Good		65.3	4.6	40+	B	1
T2	1	*Acer pseudoplatanus* Sycamore	11.0	1	25	N E S W 4.0 4.0 4.0 4.0	1.5		Early Mature	Fair	Epicormic growth - Base. Located in fenced off area **Fell - Ground level.** Remove tree to facilitate the installation and alignment of fencing.	28.3	3.0	40+	C	1
T3	1	*Quercus robur* English Oak	13.0	1	63	N E S W 9.0 6.0 6.0 7.0	1.5	1.5	Mature	Good	Leaning trunk - Minor.	179.6	7.6	40+	B	1 2
T4	1	*Cerasus avium* Wild Cherry	10.0	1	60	N E S W 2.0 7.0 6.0 5.0	2.0	2.0	Mature	Good	Located in fenced off area.	162.9	7.2	20-40	C	1 2
T5	1	*Corylus avellana* Common Hazel	2.5	20	17	N E S W 2.5 2.5 2.5 2.5	0.0		Early Mature	Good		14.5	2.1	20-40	C	1
G6	3 1	*Ilex aquifolium* Holly *Crataegus sp.* Hawthorn sp.	4.5	1	100	N E S W 2.0 2.0 2.0 2.0	0.0		Early Mature	Good	Behind secure fence.	452.4	12.0	20-40	C	2
T7	1	*Crataegus sp.* Hawthorn sp.	5.0	2	46	N E S W 3.0 3.0 3.0 3.0	0.5		Mature	Good	Located in fenced off area	96.1	5.5	20-40	C	2 3
T8	1	*Quercus robur* English Oak	14.0	1	60	N E S W 6.0 5.0 7.0 5.0	2.0		Mature	Fair	Bark exudation.	162.9	7.2	40+	B	1 2
T9	1	*Salix babylonica* Weeping Willow	14.0	1	41	N E S W 4.0 6.0 7.0 4.0	2.0	5.5	Early Mature	Good		76.0	4.9	20-40	B	1 2

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G10	2	*Acer pseudoplatanus* Sycamore	3.0	5	44	N E S W 2.0 2.0 2.0 2.0	0.0		Early Mature	Fair	Access restricted, behind secure fence.	90.5	5.4	20-40	C	1
T11	1	*Ilex aquifolium* Holly	6.0	3	27	N E S W 2.0 2.0 2.0 2.0	2.0		Early Mature	Good	**Fell - Ground level.** Remove tree to facilitate the installation and alignment of fencing.	33.9	3.3	20-40	C	1
T12	1	*Quercus robur* English Oak	4.5	1	15	N E S W 2.0 2.0 2.0 2.0	1.0		Semi Mature	Good	Not on topo. Position estimated. Edge of pond. Located in fenced off area.	10.2	1.8	40+	C	1
T13	1	*Cerasus avium* Wild Cherry	4.5	1	17	N E S W 0.0 2.0 3.5 2.0	2.0		Mature	Poor		13.1	2.0	0-10	C	1
G14	2 1	*Chamaecyparis sp.* False Cypress *Crataegus sp.* Hawthorn sp.	6.0	1	25	N E S W 2.5 2.5 2.5 2.5	0.0		Early Mature	Good		28.3	3.0	20-40	B	2
T15	1	*Laurocerasus lusitanica* Portugal Laurel	1.5	4	20	N E S W 1.5 1.5 1.5 1.5	0.0		Mature	Good	Located in fenced off area. **Fell - Ground level.** Remove tree to facilitate the installation and alignment of fencing.	18.1	2.4	20-40	C	1
T16	1	*Acer pseudoplatanus* Sycamore	9.0	2	21	N E S W 3.0 3.0 3.0 3.0	1.5		Early Mature	Good		20.4	2.6	20-40	C	1
H17	24	*Crataegus sp.* Hawthorn sp.	5.0	1	30	N E S W 3.0 3.0 3.0 3.0	0.0		Mature	Good		40.7	3.6	40+	B	2 3
T18	1	*Prunus insititia* Damson/Bullace	3.0	2	15	N E S W 4.5 2.0 0.5 1.0	1.5		Mature	Fair	Crown conflict - Structure / boundary / wire / tree. Decay / structural defect - Principal stems. Not on topo. Position estimated. Suppressed by adjacent hedgerow.	11.0	1.9	10-20	C	2

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T19	1	*Pyrus sp.* Pear sp.	5.5	1	12	N E S W 3.5 3.5 3.5 3.5	2.0	1.5	Mature	Fair	Deadwood - Minor.	6.5	1.4	20-40	C	2 3
T20	1	*Salix triandra* Alimond-leaved Willow	3.5	1	11	N E S W 2.0 2.0 2.5 1.0	1.6		Early Mature	Good	**Fell - Ground level.** Remove tree to facilitate the installation and alignment of fencing.	5.5	1.3	20-40	C	1
T21	1	*Cupressus sp.* Cypress sp.	6.0	1	32	N E S W 1.0 1.0 1.0 1.0	0.0		Early Mature	Good	**Fell - Ground level.** Remove tree to facilitate the installation and alignment of fencing.	46.3	3.8	20-40	C	1 2
H22	11	*Crataegus sp.* Hawthorn sp.	2.5	1	30	N E S W 3.0 3.0 3.0 3.0	0.0		Mature	Good		40.7	3.6	20-40	C	2 3
T23	1	*Populus tremula* Aspen	11.0	1	31	N E S W 5.0 3.0 5.0 4.5	1.5		Early Mature	Good		43.5	3.7	40+	C	1 2
G24	11	*Cupressus sp.* Cypress sp.	6.5	1	30	N E S W 2.5 2.5 2.5 2.5	0.0		Mature	Good	**Fell - Ground level.** Remove tree group to facilitate the installation and alignment of fencing.	40.7	3.6	20-40	C	1 2
T25	1	*Malus sp.* Apple sp.	5.5	1	36	N E S W 3.0 5.0 4.0 4.0	2.0	1.0	Mature	Good		58.6	4.3	40+	C	2
T26	1	*Cupressus sp.* Cypress sp.	4.0	2	12	N E S W 0.5 1.0 1.0 1.0	0.0		Early Mature	Good	Not on topo. Position estimated. **Fell - Ground level.** Remove tree, due to drainage repairs and new drainage route required, which will heavily impact the roots.	6.6	1.4	10-20	C	1
T27	1	*Acer pseudoplatanus* Sycamore	12.0	1	53	N E S W 6.0 6.0 6.0 6.0	2.0	2.0	Early Mature	Good	**Fell - Ground level.** Remove tree, due to drainage repairs and new drainage route required, which will heavily impact the roots.	127.1	6.4	40+	B	1 2
T28	1	*Cerasus avium* Wild Cherry	7.5	1	44	N E S W 5.5 5.0 5.5 5.5	2.0		Mature	Good	Fork - Weak with included bark.	87.6	5.3	10-20	C	1

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T29	1	*Crataegus sp.* Hawthorn sp.	3.5	5	17	N E S W 2.0 2.0 2.0 2.0	0.0		Early Mature	Good		14.5	2.1	40+	C	1 2
T30	1	*Prunus sp.* Cherry sp.	6.5	2	43	N E S W 5.0 5.0 5.0 5.0	2.0		Mature	Good	Fork - Weak with included bark. Stems - Co-dominant.	84.2	5.2	10-20	C	1
T31	1	*Frangula sp.* Buckthorn sp.	2.5	2	11	N E S W 1.0 1.0 1.0 1.0	0.0		Semi Mature	Good	Access to inspect base - Restricted / obscured.	5.8	1.4	20-40	C	1
T32	1	*Tilia sp.* Lime sp.	7.5	1	36	N E S W 4.5 4.5 4.5 4.5	2.0		Early Mature	Good	Epicormic growth - Base. Fork - Weak with included bark.	58.6	4.3	40+	B	1
H33	30	*Crataegus sp.* Hawthorn sp.	2.0	1	100	N E S W 1.0 1.0 1.0 1.0	0.0		Mature	Good	Managed hedgerow.	452.4	12.0	40+	B	2 3
G34	4 3 2 1	*Crataegus sp.* Hawthorn sp. *Acer campestre* Field Maple *Tilia sp.* Lime sp. *Pinus sylvestris* Scots Pine	7.5	1	35	N E S W 4.0 4.0 4.0 4.0	1.5		Early Mature	Good		55.4	4.2	40+	B	1 2
T35	1	*Aesculus hippocastanum* Horse Chestnut	16.0	1	110	N E S W 7.0 7.0 7.0 7.0	1.5	2.5	Mature	Good	Overhanging footpath, low branches. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	547.4	13.2	40+	A	1

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T36	1	*Aesculus hippocastanum* Horse Chestnut	16.0	1	72	N 3.0 E 6.0 S 5.0 W 4.0	1.5	2.0	Mature	Good	Fork - Weak with included bark. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	234.5	8.6	20-40	B	1 2
T37	1	*Aesculus hippocastanum* Horse Chestnut	14.0	1	74	N 7.0 E 6.0 S 6.0 W 6.0	1.0	1.5	Mature	Good	Avenue feature. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	247.7	8.9	20-40	A	1 2
T38	1	*Aesculus hippocastanum* Horse Chestnut	1.5	1	64	N 1.0 E 1.0 S 1.0 W 1.0	0.5		Mature	Fair	Regenerated from stump. **Fell - Ground level.** Remove tree (regrown stump) to facilitate access to car park. **Stump - Remove / grind.** Grind out stump to facilitate car park access construction.	185.3	7.7	10-20	C	1
T39	1	*Aesculus hippocastanum* Horse Chestnut	15.0	1	90	N 6.0 E 7.0 S 7.0 W 7.0	1.5	1.5	Mature	Good	Avenue feature. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	366.4	10.8	20-40	A	1 2
T40	1	*Aesculus hippocastanum* Horse Chestnut	14.0	1	61	N 7.5 E 4.0 S 4.5 W 4.5	1.5	2.0	Mature	Good	Avenue feature. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	168.3	7.3	20-40	B	1 2

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Tree/Group Reference	Tree Count	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T41	1	*Aesculus hippocastanum* Horse Chestnut	15.0	1	91	N E S W 6.0 6.0 8.0 7.0	1.5	2.0	Mature	Good	Arboricultural work - Historic. Avenue feature. **Lift low canopy - Specified extent.** Lift low branches from over driveway to a finished height of 3.5m measured from the ground surface.	374.6	10.9	20-40	A	1 2
T42	1	*Prunus sp.* Cherry sp.	3.0	1	13	N E S W 3.0 2.5 3.0 3.0	1.5		Mature	Good	**Fell - Ground level.** Remove tree, to facilitate installation of drainage run.	7.6	1.6	20-40	C	1
T43	1	*Prunus sp.* Cherry sp.	3.0	1	8	N E S W 1.0 1.0 1.0 1.0	1.5		Mature	Fair	**Fell - Ground level.** Remove tree to facilitate the proposed fencing alignment.	2.9	1.0	20-40	C	1
T44	1	*Prunus sp.* Cherry sp.	4.5	1	16	N E S W 3.0 3.0 3.0 3.0	1.5	1.5	Early Mature	Good	**Fell - Ground level.** Remove tree to facilitate the proposed fencing alignment.	11.6	1.9	20-40	C	1
T45	1	*Prunus sp.* Cherry sp.	5.0	1	12	N E S W 4.0 4.0 4.0 4.0	1.0		Early Mature	Good	Rubbing limbs. **Fell - Ground level.** Remove tree, to facilitate car park egress and footpath.	6.5	1.4	10-20	C	1
T46	1	*Quercus robur* English Oak	15.0	1	86	N E S W 4.0 4.0 5.0 4.0	1.5		Mature	Good	Ivy or climbing plant. Outside of fence. Roadside tree.	334.6	10.3	40+	B	1
T47	1	*Fraxinus excelsior* Ash	16.0	1	74	N E S W 4.0 5.0 6.0 4.0	2.0		Mature	Good	Decay / structural defect - Extensive. Decay / structural defect - Major. Decay / structural defect - Open cavity / cavities. Decay / structural defect - Principal stems. Major decay 0-2m. Deadwood in crown. Shedding branches. Tree is outside of fence in highway verge. **Fell - Ground level.**			0-10	U	

Jerrings Hall Farm, Dickens Heath, B90 4DX
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Tree/Group Reference	Tree Count	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T48	1	*Acer campestre* Field Maple	7.0	1	69	N E S W 4.5 4.5 4.5 4.5	2.0		Mature	Good		215.4	8.3	40+	B	1
T49	1	*Quercus robur* English Oak	11.0	1	89	N E S W 8.0 8.0 8.0 8.0	2.0		Mature	Good		358.3	10.7	40+	B	1
G50	10 5 2	*Pinus sylvestris* Scots Pine *Prunus sp.* Cherry sp. *Sorbus aucuparia* Rowan/Mountain Ash	10.0	1	30	N E S W 3.0 3.0 3.0 3.0	1.5		Early Mature	Good	Data represents general physical character of trees in the group. **Fell - Ground level.** Remove 4 trees from group to facilitate the drainage arrangement.	40.7	3.6	40+	B	2
H51	10 10 10	*Corylus avellana* Common Hazel *Crataegus sp.* Hawthorn sp. *Prunus spinosa* Blackthorn/Sloe	1.8	1	20	N E S W 0.75 0.75 0.75 0.75	0.0		Mature	Good	Hedgerow - Maintained.	18.1	2.4	40+	B	3
T52	1	*Salix caprea* Goat Willow/Great Sallow	8.5	1	38	N E S W 4.5 4.0 4.5 4.5	0.5		Early Mature	Good		65.3	4.6	20-40	B	1
T53	1	*Tilia sp.* Lime sp.	8.0	1	36	N E S W 3.5 3.5 3.5 3.5	0.5		Early Mature	Good		58.6	4.3	40+	B	1
T54	1	*Tilia sp.* Lime sp.	8.0	1	37	N E S W 3.5 3.5 3.5 3.5	0.5		Early Mature	Good		61.9	4.4	40+	B	1

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Tree Survey BS5837-2012

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Tree/Group Reference	Tree Count	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T55	1	*Quercus robur* English Oak	2.0	1	15	N 1.5 E 1.5 S 1.5 W 1.5	0.5		Semi Mature	Good	Staked tree / trees.	10.2	1.8	40+	C	1
T56	1	*Quercus robur* English Oak	9.0	1	67	N 4.5 E 4.5 S 4.0 W 4.5	1.5		Mature	Good	Large gall on NW aspect of stem @ 1-2m.	203.1	8.0	40+	B	1
H57	10	*Laurocerasus lusitanica* Portugal Laurel	1.5	1	15	N 0.5 E 0.5 S 0.5 W 0.5	0.0		Early Mature	Good	Hedgerow - Maintained. Landscape hedge feature.	10.2	1.8	40+	C	2

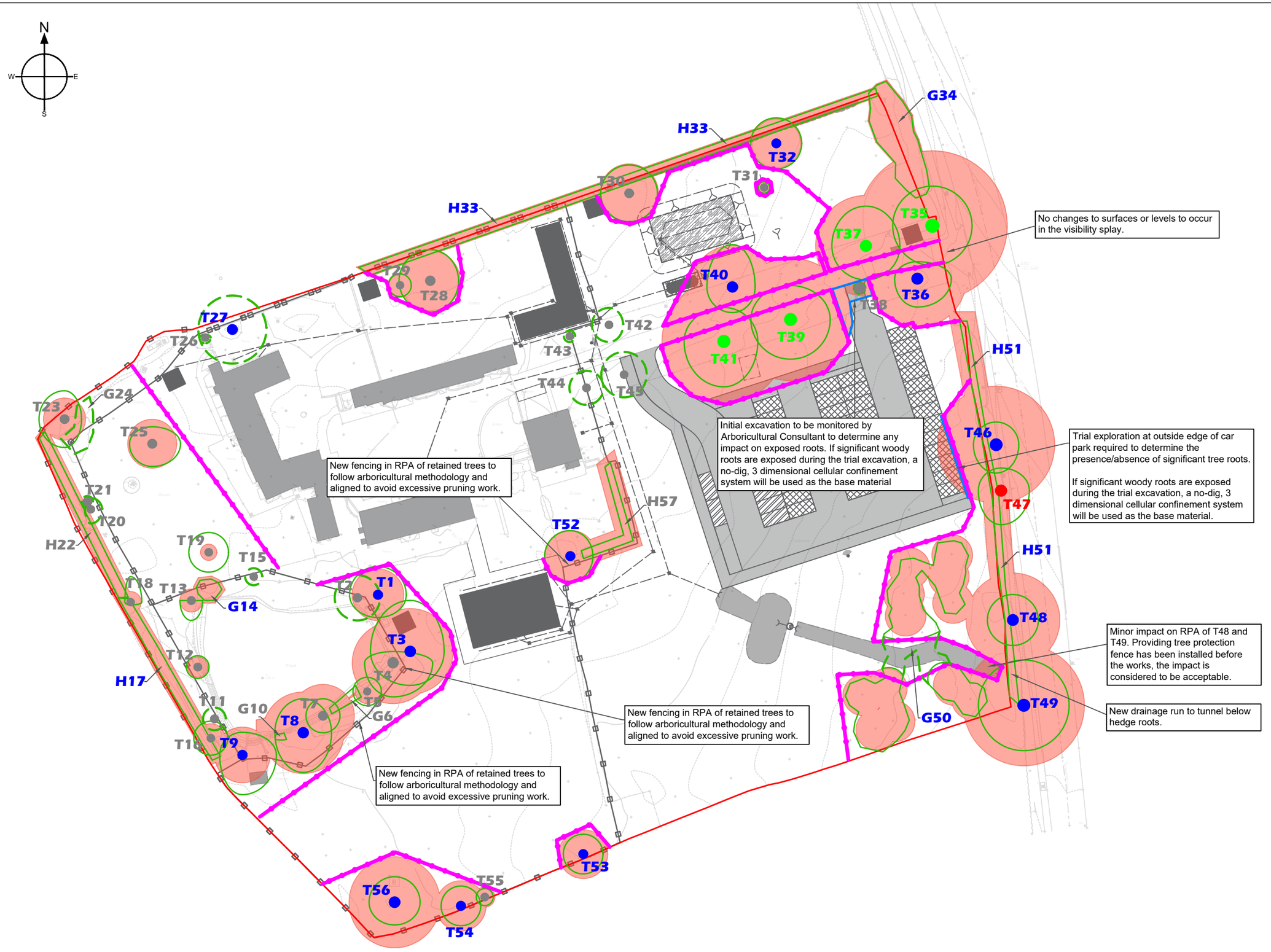
Tree Schedule Key

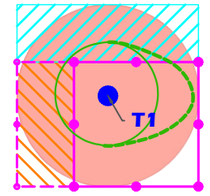
Treework Environmental Practice

Tree/Group Reference	Reference number for individual trees or groups of trees, prefixed by T (Tree), G (Group), W (Woodland), H (Hedge) or S (Shrub) to indicate the type of feature.
Tree Count	Number of trees of a particular species recorded within a group feature, with the default value of 1 for single trees.
Species	Scientific name followed by common name (where available).
Height (m)	Tree height to the nearest metre, either measured with a device or estimated. Tree height for group records refers to the estimated average height of trees within the group (unrepresentative trees may be excluded from this estimate).
Stem Count	Number of stems. Stem count indicates whether the tree is single-stemmed or multi-stemmed and informs the RPA calculation.
Stem Diameter (cm)	Stem diameter, measured at 1.5m above ground level in accordance with Annex C of BS5837:2012. Diameters of multi-stemmed trees are presented as a combined stem diameter calculated in accordance with the formulae in Section 4.6.1 of BS5837:2012. Stem diameter for group records refers to the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Radius (m)	Distance from stem position to crown periphery in either the four cardinal or four ordinal directions, estimated to the nearest half metre. Crown spreads for group records refer to the estimated average spreads of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Clearance Height (m)	Distance between the ground and the lowest point of the crown periphery, estimated to the nearest half metre.
Lowest Branch Height (m)	Height of the lowest branch, the removal of which is considered likely to have a significant negative effect on the tree in terms of physiology or in terms of the size of wound created.
Life Stage	Young, Semi-mature, Early Mature, Mature, Late Mature, Ancient or Veteran.
Physiological Condition	Good, Fair, Poor, Dead.
Observations	General description of the tree or tree group, including basic features and morphology, structural and physiological condition, growing conditions and surroundings.
Recommendations	Management recommendations for tree works to address immediate unacceptable risks, or to facilitate development proposals.
RPA (m^2)	Minimum area around a tree deemed to contain sufficient roots and rooting soil volume to maintain the tree's viability, in which the protection of roots and soil structure is treated as a priority. Calculated from the stem diameter according to the formulae in BS5837:2012. RPA for group records is based on the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
RPR (m)	Radius of the RPA, in metres, when this is plotted as a circle around the tree stem.
Remaining Contribution (years)	Estimated number of years for which the tree will continue to make a positive contribution to the site, banded as < 10, 10-20, 20-40, 40 +.
Retention Category	Quality and value category (**A**, **B**, **C** or **U**) as defined in Table 1 of BS5837: 2012 (reproduced below), where **A** = high quality and value; **B** = moderate quality and value; **C** = low quality and value and **U** = tree identified for removal due to poor condition regardless of development proposals.
Retention Sub-category	One or more sub-categories (1-3) as defined in Table 1 of BS5837: 2012 (reproduced below), assigned for Categories **A**, **B** or **C** where 1 = arboricultural qualities, 2 = landscape qualities and 3 = conservation and cultural value.

Appendix B

Tree Protection Plan





- T1 — Tree or Group Reference Number
- Tree Stem Position A Category Tree
- Tree Stem Position B Category Tree
- Tree Stem Position C Category Tree
- Tree Stem Position U Category Tree
- Tree Crown
- Root Protection Area
- Tree Protection Fencing
- Initial Tree Protection Fencing
- Ground Protection
- Special Engineering /Supervised Excavations
- Construction Exclusion Zone
- Pruning/Tree Removal
- Site Boundary

Date:
June 2020

Scale:
1:750 @ A3

Project Name:
Jerrings Hall Farm, Dickens Heath, B90 4DX

Drawing Title:
Tree Protection Plan

Drawing Number:
200604-2.0-JHF-TPP-MM

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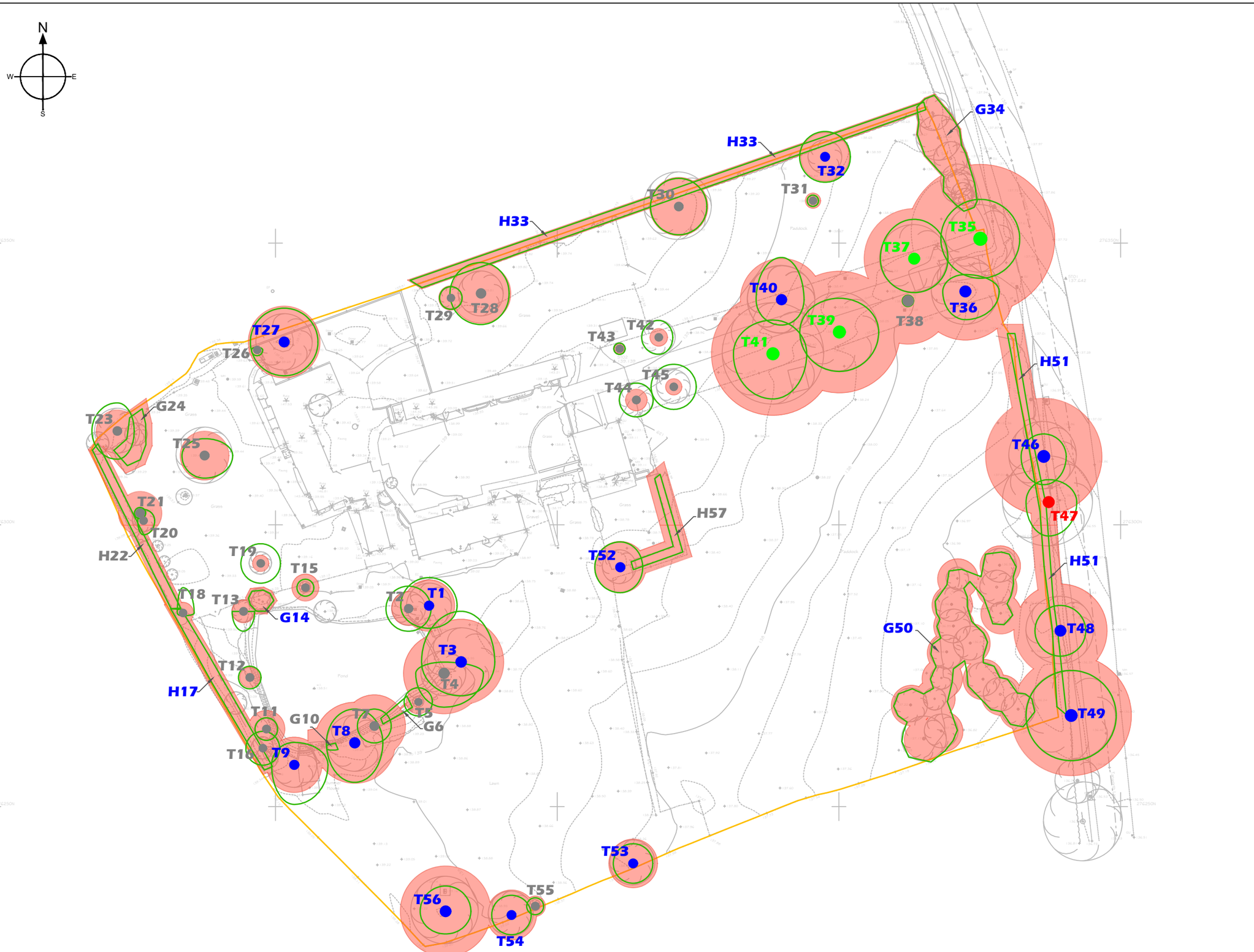
Appendix C

Tree Constraints Plan



T1 Tree or Group Reference Number

Tree Crown

Root Protection Area

Tree Survey Boundary

Tree Stem Position A Category Tree

Tree Stem Position B Category Tree

Tree Stem Position C Category Tree

Tree Stem Position U Category Tree

Date:
September 2018

Scale:
1:750 @ A3

Project Name:
Jerrings Hall Farm, Dickens Heath, B90 4DX

Drawing Title:
Tree Constraints Plan

Drawing Number:
180918-1.0-JHF-TCP-MM

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Appendix D

Tree Protection Specifications

Technical Measures to Prevent Tree Damage

Tree Pruning

Tree pruning will be carried out where the design and/or planned site operations encroach into the crowns of trees and where these encroachments can be accommodated through facilitation pruning without significantly reducing the landscape value and/or viability of the tree.

Tree pruning operations will:

- be specified by the arboricultural consultant
- be in accordance with current best practice
- be carried out by a suitably experienced and qualified arborist

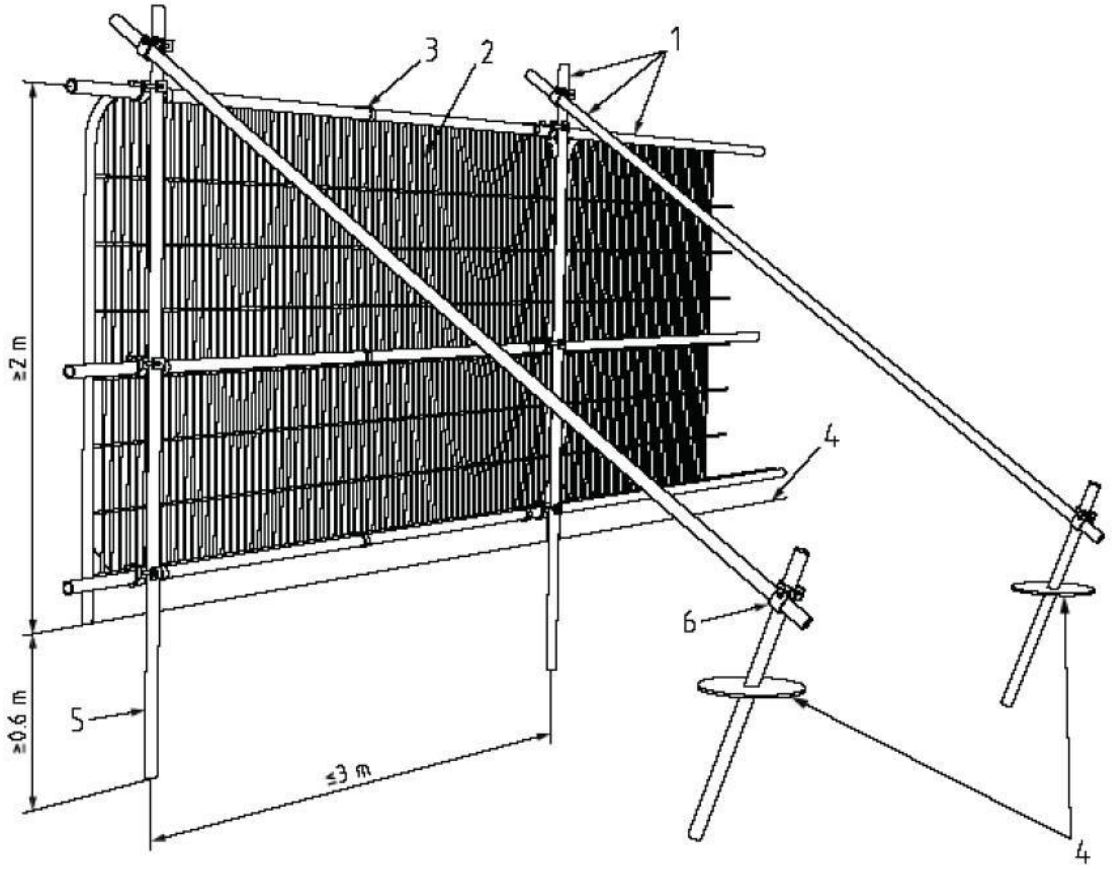
Tree Protection Fencing

Tree protection fencing will be located at the edge of the Construction Exclusion Zone (CEZ) and will be suitably robust to provide sufficient protection for trees. The performance requirement for fencing will be determined by the type of activity that will take place in the area around the CEZ.

Typically the performance requirement for the Tree Protection Fencing will be:

- Tree Protection Fencing will be installed prior to commencement of activity on the site.
- Tree Protection Fencing will only be removed once all works associated with the development have been completed.
- The Tree Protection Fencing will be installed and removed without causing damage to retained trees.
- Installation, removal and, where required, replacement of Tree Protection Fencing will be supervised and signed off by the Arboricultural Consultant.
- The Tree Protection Fencing will be stable and robust (typical construction method, in accordance with BS5837: 2012, see below).
- The area between the Tree Protection Fencing and the tree will be a Construction Exclusion Zone (CEZ)
- Fence panels will be made of mesh (e.g.: Heras fencing) or, if solid, will have 30cm windows cut into enough panels to enable conditions within the CEZ to be viewed.
- The CEZ will be clearly identified (see Construction Exclusion Zone sign example below)

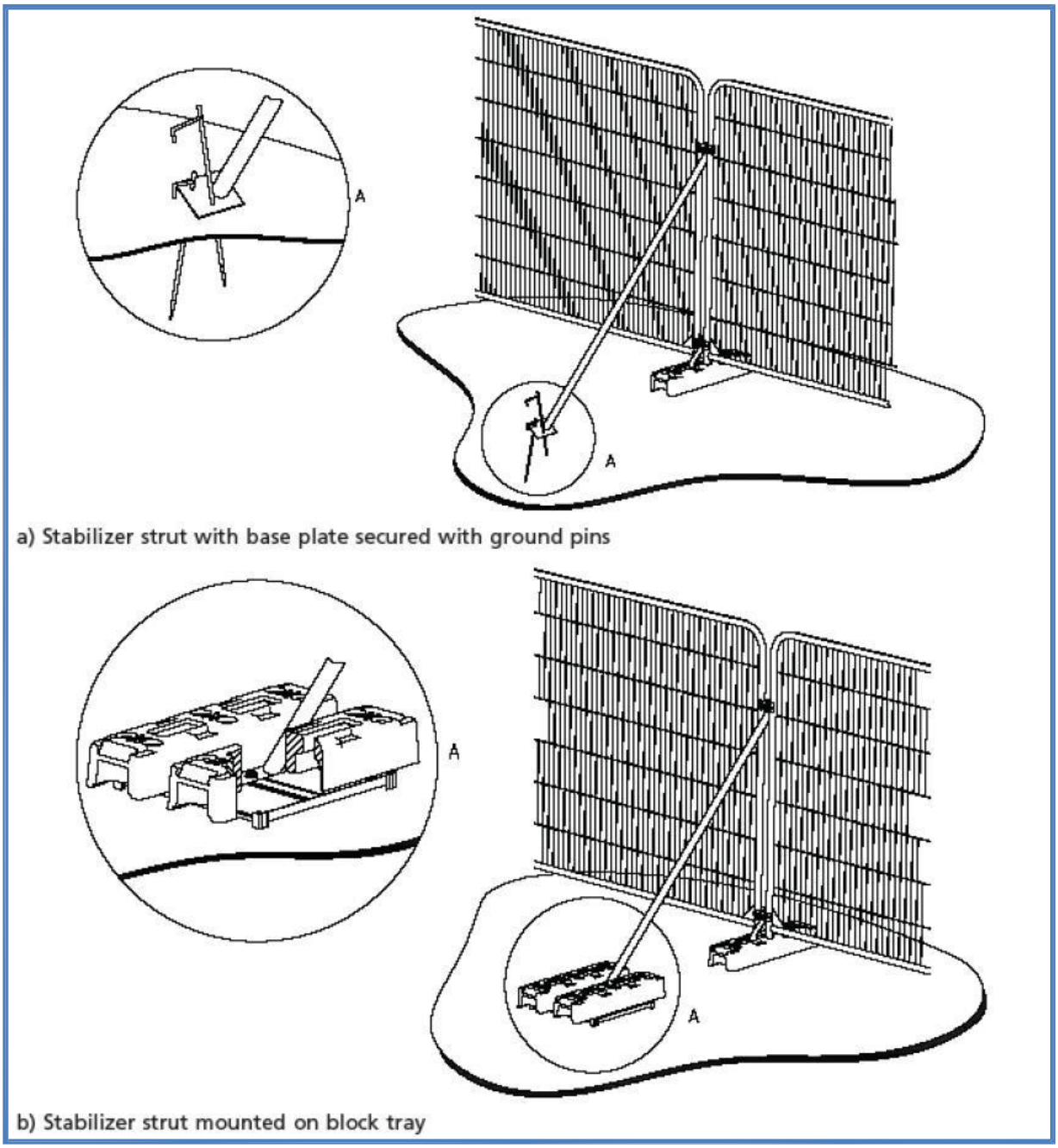
Example Tree Protection Fencing Sign



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

BS5837: 2012 - Figure 2 – Tree Protective Barrier



BS5837: 2012 - Figure 3 – Examples of Above Ground Stabilisation Systems

Appendix E

Tree Survey Method and Limitations

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Tree Survey Method and Limitations

Tree Survey Method

1. The tree survey was conducted from ground level aided by the Visual Tree Assessment method (Mattheck and Breloer, 1994) and in accordance with BS5837: 2012.

2. All trees on the site with a stem diameter of over 75 mm (measured at 1.5 m above ground) were included in the survey.

3. Offsite trees within influencing distance of the site (typically those located within a distance of up to 12 times their stem diameter away from the site) were included in the survey.

4. Data collected included:

   - a designated tree number
   - type of feature (trees, group, woodland, hedge)
   - number of trees in group
   - tree species
   - height (metres)
   - number of stems
   - stem diameter (in centimetres, as measured at 1.5 m above ground)
   - crown clearance (height of periphery of crown spread above ground level in metres)
   - height of lowest branch (metres),
   - branch spread (to N, S, E and W)
   - age class
   - physiological condition
   - useful life expectancy
   - structural condition
   - BS5837 retention category (A, B, C or U)
   - site notes (where this has a bearing on the present or future health or structural condition of the tree)
   - preliminary management recommendations.

5. All measurements were made in metric using measuring devices where applicable. Estimated stem diameters (e.g., due to lack of access or dense undergrowth) were recorded as such and are shown in the Tree Schedule in bold (see the key at the end of the Tree Schedule table at Appendix A for an explanation of the measurements and codes presented therein).

6. While the appraisals of the surveyed trees are not tree risk assessments, they nonetheless take into account observed structural defects in drawing conclusions about the trees' retentive worth.

Survey Limitations

1. The survey was a preliminary assessment from ground level and observations were made solely from visual inspection for the purposes of an assessment relevant to planning and development. Only binoculars, trowel, mallet and fine manual metal probe were used to aid tree assessment, where necessary. No invasive or other detailed internal decay detection devices were used in assessing trunk condition.

2. The conclusions relate to conditions found at the time of survey. Any significant alteration to the site that may affect the trees that are present or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events or other site works) will require a re-assessment of the trees and the site.

3. This survey is not a tree safety inspection. It is carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations (see Appendix A - Tree Schedule). A full assessment of the levels of risk posed by trees would need to consider site use together with tree hazards.