Arboricultural Survey

Hatches Estate
West Chiltington
West Sussex

26 April 2017

PJC ref: 4347/17-01

This report has been prepared by

PJC Consultancy Ltd

on behalf of

West Sussex County Council

Prepared by	**Owen Allpress BSc(Hons) M.Arbor.A** Owen has received both an FdSc and a BSc (Hons) in Arboriculture and is a professional member of the Arboricultural Association. Working in the industry for nearly 10 years, Owen has extensive experience in arboricultural contracting, consultancy and business management.
Checked by	**Peter Davies FdSc Arboriculture M.Arbor.A** Peter has a Foundation Degree in Arboriculture and is a professional member of the Arboricultural Association. He has ten years experience in the arboricultural industry, originally working as a groundsman and feller, and progressing into consultancy. He is a Lantra accredited professional tree inspector.

PJC Ref No: PJC/4347/17-01
Date: 26/04/2017

PJC Consultancy
Arboricultural and Ecological Consultants

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1 INTRODUCTION

1.1 **Instruction:** PJC Consultancy has been instructed by West Sussex County Council to provide an arboricultural survey of Hatches Estate.

1.2 **Brief:** PJC Consultancy has been commissioned to undertake an initial arboricultural survey following the guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.3 **Scope of this report:** This report is concerned with all significant trees located within the property boundaries of the site. Additionally, trees located around the curtilage of the site have also been surveyed when they are considered likely to have the potential to impact on the development (in relation to root and crown protection or foundation design).

1.4 **Purpose of report:** This survey has been undertaken to record the condition and value of all trees recorded within supplied topographical survey where relevant at the site as well as the material constraints they pose on the development. The information in this report should be used to guide the design proposals.

1.5 **Documents and information provided:** The following documents were provided by the client to produce this report:

- Topographical survey 15120117 & 15220317 (East street boundary)

2 SITE VISIT AND SURVEY METHODOLOGY

2.1 **Site visit:** A site visit was carried out on 27th March 2017. The weather conditions at the time were adequate to carry out a comprehensive assessment of trees on site.

2.2 **Tree information:** The following measurements and information were recorded in the Tree Survey Schedule for each individual tree (average dimensions are recorded for groups):

- Tree reference number. (T=tree, G=group, H=hedgerow, W=woodland block).
- Species (common and scientific name).
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for multi-stemmed trees with six or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth (for individual trees only).
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree including any notable features).
- Preliminary management recommendations (prescriptions for tree management processes based on the current land use and not related to the proposed development).
- Tree categorisation (see below).
- Root protection area (m^2).
- Root protection radius (m).

2.3 **Tree categorisation:** The condition and value of each tree was evaluated based on the current land use. Each tree or tree group has been awarded either category A, B, C or U and a sub category of either 1,2 or 3 or a combination of the sub categories.

2.4 Tree categorisation summary:

- A – Trees of good condition or high value, with a predicted life span in excess of forty years.
- B – Trees of moderate condition or value, with a predicted life span in excess of twenty years.
- C – Trees of poor condition or low value, with a predicted life span in excess of ten years.
- U – Trees of such impaired condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years.

2.5 Tree sub categorisation summary:

- 1 – Trees have mainly arboricultural value, e.g. trees of good condition, form and vitality or rare tree species.
- 2 – Trees have mainly landscape value, e.g. trees of landscape prominence, that serve to screen unsightly views or that are required for privacy.
- 3 – Trees with mainly cultural value including conservation, e.g. commemorative trees, trees of historical significance, trees of ecological significance or veteran trees.

2.6 Each tree can only be categorised as A, B or C but may comply with more than one sub category. A cascade chart further explaining how tree categorisation is decided is included in Appendix 3.

2.7 **Root protection areas:** Each tree's stem diameter was recorded, and applied to the formula found in Appendix 4 to establish its root protection area. A root protection area represents a calculation of the minimum area of root growth required to support the tree, not the total rooting area.

2.8 The root protection areas are plotted onto the Tree Constraints Plan in Appendix 1, and recorded in the Tree Survey Schedule in Appendix 2. These are represented as a circle on the plan (unless significant rooting constraints are present), and are colour coded depending on the category the tree has been awarded. Where existing site conditions/features are present that are deemed likely to have affected the root morphology, the root protection areas have represented as a polygon of equivalent size.

2.9 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally and act as transport for water and nutrients. Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above the growing medium, (i.e. from porous to non-porous), can alter the resources available to the tree, which in turn can lead to its decline.

2.10 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during any proposed works. The majority of root growth is usually found within the top meter of soil. As such, even shallow disturbance within root protection areas can potentially have a significant impact on the trees.

2.11 **Limitations of site visit:** The survey methodology was restricted to a visual tree assessment from ground level. No tree climbing or ground investigation was carried out for this report. Where existing site constraints are present such as ivy covered trees, a very dense under-storey, or where trees are located on third party land to which access was not granted, tree dimensions were estimated by eye as accurately as possible. Only trees recorded within the topographical survey were included within this report. Expansion of the scope of the topographical survey may become necessary dependant on design proposals.

3 SITE DETAILS AND SURVEY FINDINGS

3.1 **Site location:** The site is situated just north of West Chiltington. The central National Grid Reference for the site is TQ 09150 18633. The surrounding land use comprises primarily of grazing land to the north and east with Broadford Bridge Road to the West and the village of West Chiltington to the south. The location of the site within its environs is shown in figure 1.

Figure 1: Location of Site and Environs. Red line image depicts extent of estate not surveyed area.

3.2 **Site layout:** The site currently used for animal grazing with a number of farm buildings joined to create a single oblong barn located to the west of the site. Small areas of hard standing adjacent to the track leading north is accompanied by several semi mature trees. The remainder of trees surveyed consist of five large mature oak at the centre boundary of the site, several of which exhibit poor vitality. These trees still retain value due to their immense size and position within the landscape north of the village. Currently, the farm is accessed form Broadford Bridge Road which is a shared access serving several residential properties. Broadford Bridge Road is sat at a lower level than the surrounding land. Trees beyond the site to the west were not recorded, as they are not likely to present a constraint to proposals due to the change in levels and the presence of the road between. In addition to the main site area, the boundary of the site with East Street was also surveyed. This area included several mature high quality trees, which were located on their party land adjacent to the site.

3.3 Further information for each tree can be viewed in the Tree Survey Schedule in Appendix 2.

3.4 **Statutory tree protection:** No information regarding tree preservation orders was obtained form Horsham District Council as part of this report. Any persons proposing to undertake tree works must check the status of these trees with the local authority, and gain necessary consent before works are undertaken.

3.5 Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

3.6 **Tree categorisation summary:** The table below summarises the category of trees recorded across the site. Further information can be found about each tree within the Tree Survey Schedule in Appendix 2.

Table 1: Tree categorisation summary

Categorisation	Individual tree	Tree group
A	1	0
B	11	4
C	4	1
U	0	0
Total	16	5

4 CONCLUSIONS

4.1 To comply with BS5837: 2012, it is recommended that an arboricultural impact assessment be produced when the proposed layout has been finalised. The arboricultural impact assessment should include a schedule of trees to be retained and removed, evaluate the likely effects of construction works on retained trees including post development pressures and provide recommendations on mitigation measures to be implemented. It should also include a Tree Retention Plan.

4.2 As far as possible new buildings and areas of hard surfacing should be located outside of the root protection areas of retained trees. In certain situations, engineered solutions are available to allow construction within the root protection areas. Further input from an arboriculturalist should be sought regarding their site-specific viability before these methods are relied upon.

4.3 The site once cleared of existing farm buildings has the potential to support housing whilst retaining the mature tree presence. As part of a suitable proposal mature oak along the centre of the site will require remedial work to remove deadwood and any unsafe limbs. Due to the moderate loss of vitality in several of the oak along the centre boundary proposals should seek to avoid RPAs entirely to allow the maximum area possible for the tree to continue to function. If it must be the case that new surfaces encroach, they should be below 20% and of a load bearing and porous construction. The trees will likely require long-term future maintenance to remove deadwood depending on the rate of formation. A program of condition surveying by a qualified arboricultural consultant may be required to demonstrate the a duty of care, though the realisation of this will depend on whether the oaks fall within a single land owners responsibility or split up amongst private properties. Given the position of the trees east of the area likely to be developed shading may pose a constraint for both new properties and gardens. A suitable design should take into account the need to retain trees however also consider the impact that retention will have on the proposed dwellings and garden space associated.

4.4 Over-shading of gardens and dwellings for prolonged periods, nuisance caused by leaf/fruit drop or honeydew drip (particularly onto footpaths, parking areas or roof guttering) and an over-bearing presence of large trees can result in significant pressure from future residents to carry out harsh remedial pruning works or to remove trees post development. All of these factors should be considered at the design stage.

4.5 Allowance should be made for future canopy growth of both existing and newly planted trees. Trees growing in areas of limited space may require regular future pruning works. The suitability of different species for regular crown reductions, the affect on their amenity value and the cost of future tree works should be considered.

4.6 The final design should show service locations and their routing. New utilities should be located outside of the trees root protection areas where they are underground and outside of the anticipated area of mature crown spread where above ground. If this is not possible, recommendations outlined in NJUG10 '*Guidelines for the planning, installation*

and maintenance of utilities in proximity to trees' should be followed. Advice should also be sought from the project arboriculturalist.

4.7 Where tree removal is necessary to facilitate the wider regeneration benefits associated with development, a tree replacement strategy could be implemented to mitigate tree loss. If further tree planting does occur, consideration should be given to species selection (in relation to form and potential size) and planting locations to ensure their successful integration into the new development.

5 OTHER CONSIDERATIONS

5.1 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

5.2 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*', as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

5.3 It is also recommended that all tree works be carried out by an Arboricultural Association approved contractor. Approved contractors are expected to work to industry best standards, and the Arboricultural Association website contains contact details and information on engaging a suitable contractor.

5.4 The trees at this site were assessed for their condition and safety in relation to the average range of weather conditions that the region experiences. Any weather events that exceed the average norm cannot be predicted, and so their effects are not considered within this report.

5.5 The views and opinions contained within this report are entirely those of the author.

Contact details

PJC Consultancy Ltd
Chapter House
Priesthawes Farm
Hailsham Road
Polegate
East Sussex
BN26 6QU

Tel: 01323 400311

E-mail: owen@pjcconsultancy.com

Author: Owen Allpress

Date: 26 April 2017

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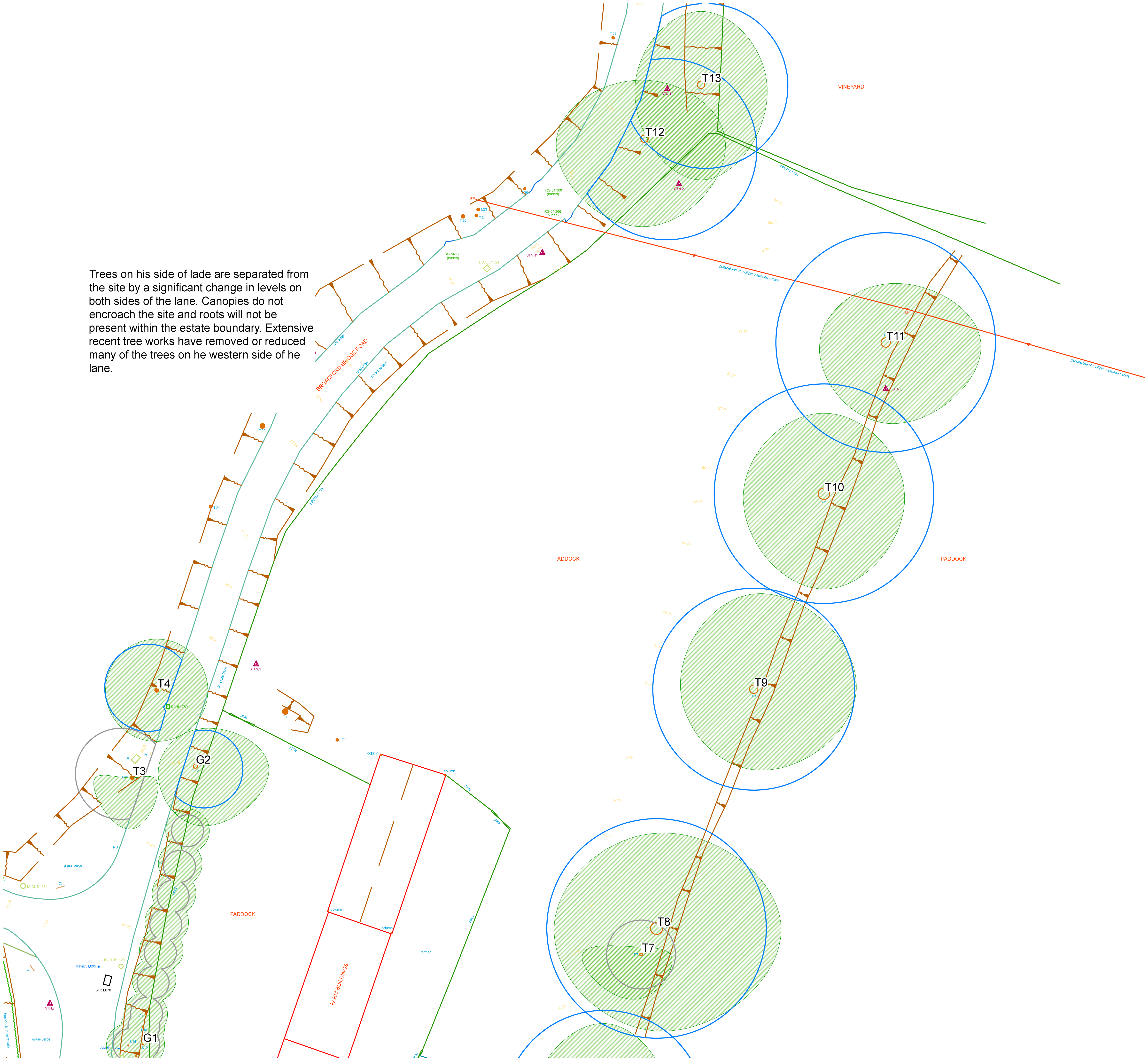
APPENDIX 1
Tree Constraints Plan

Trees on his side of lade are separated from the site by a significant change in levels on both sides of the lane. Canopies do not encroach the site and roots will not be present within the estate boundary. Extensive recent tree works have removed or reduced many of the trees on he western side of he lane.



Key:

- RPA for CAT A* tree
- RPA for CAT B* tree
- RPA for CAT C* tree
- RPA for CAT U* tree
- Tree canopy

**** Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.***

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4347/17-01 contains further information for each tree.

This drawing should be viewed in colour.

Drawing no: PJC/4347/17/A **Rev:** 01 **Sheet number:** 1 of 3

Client and site:
Strutt & Parker LLP
Hatches Estate
West Chiltington
West sussex

Drawing title: Tree Constraints Plan

Date drawn: 11/04/2017

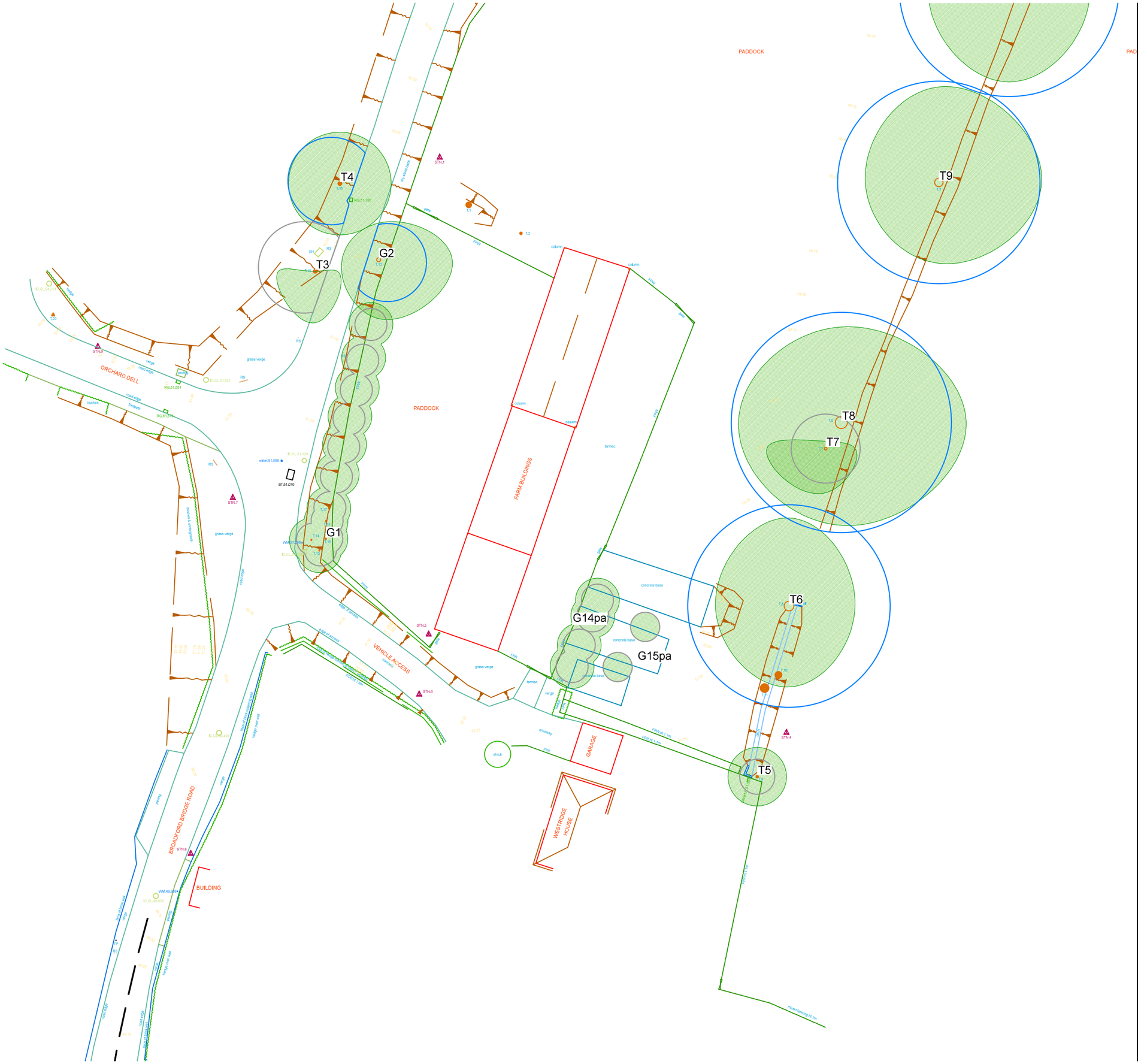
Scale: 1:500 at A3

Drawn by: OA **Checked by:** NB

PJC Consultancy
Arboricultural and Ecological Consultants

PJC Consultancy
Chapter House, Priesthawes Farm,
Hailsham Road, Polegate, East Sussex,
BN26 6QU.

t: 01323 400311
e: contact@pjcconsultancy.com
w: www.pjcconsultancy.com



Key:

- RPA for CAT A* tree
- RPA for CAT B* tree
- RPA for CAT C* tree
- RPA for CAT U* tree
- Tree canopy

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Hatches Estate
West Chiltington
West sussex

Drawing title: Tree Constraints Plan

Date drawn: 11/04/2017

Scale: 1:500 at A3

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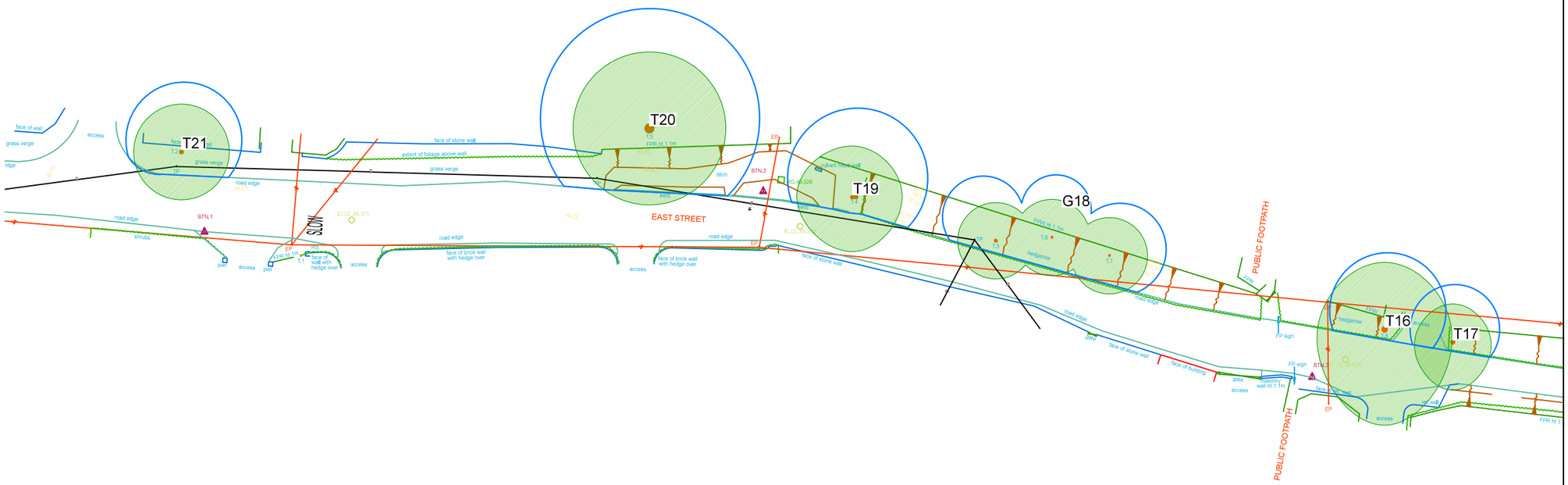
PJC Consultancy
Chapter House, Priesthawes Farm,
Hailsham Road, Polegate, East Sussex,
BN26 6QU.

t: 01323 400311
e: contact@pjcconsultancy.com
w: www.pjcconsultancy.com



Key:

- RPA for CAT A* tree
- RPA for CAT B* tree
- RPA for CAT C* tree
- RPA for CAT U* tree
- Tree canopy

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This drawing should be viewed in colour.

Drawing no: PJC/4347/17/A **Rev:** 01 **Sheet number:** 3 of 3

Client and site:
East Street Boundary
Strutt & Parker LLP
Hatches Estate
West Chiltington
West sussex

Drawing title: Tree Constraints Plan

Date drawn: 11/04/2017

Scale: 1:500 at A3

Drawn by: OA **Checked by:** NB

PJC Consultancy
Chapter House, Priesthawes Farm,
Hailsham Road, Polegate, East Sussex,
BN26 6QU.

t: 01323 400311
e: contact@pjcconsultancy.com
w: www.pjcconsultancy.com

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APPENDIX 2
Tree Survey Schedule

Tree Survey Schedule

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Client: Strutt & Parker
Site: Hatches estate, West Chiltington
Survey date: 27th March 2017
Surveyor: Owen Allpress

T: Individual tree or shrub
G: Group of 2 or more trees
H: Hedgerow
W: Woodland block

Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
G1	Hazel & Birch	7	180	N	3	Crown	Mature	Good	Good	Small tree group to top of bank. Services at roadside. visual screening from road.	None at time of survey	B2	14.7	2.2
				E	3	5w								
			avg est	S	3	Branch								
				W	3	5w								
G2	Pedunculate Oak, *(Quercus robur)*	14	400	N	5	Crown	Mature	Good	Obstructed	Detailed inspection of stem base not possible due to position of trees atop bank.	None at time of survey	B2	72.5	4.8
				E	10	3e								
			avg est	S	8	Branch								
				W	5	4e								
T3	Flowering cherry, *(Prunus spp)*	7	470	N	0	Crown	Mature	Good	Fair	Ganoderma bracket present at 1.5m on eastern side stem. suppressed form.	None at time of survey	C2	100.1	5.6
				E	3	1s								
				S	7	Branch								
				W	5	4s								
T4	Pedunculate Oak, *(Quercus robur)*	15	450	N	7	Crown	Mature	Fair	Good	Located atop bank approx. 3.5m above road surface. minor deadwood.	None at time of survey	B1	91.7	5.4
				E	7	8e								
			est	S	7	Branch								
				W	7	8e								
T5	Common ash, *(Fraxinus excelsior)*	13	200	N	4	Crown	Semi-mature	Good	Good	Self set tree at corner rear boundary of residential property.	None at time of survey	C1	18.1	2.4
				E	4	3e								
			ms est	S	4	Branch								
				W	4	4e								
T6	Pedunculate oak, *(Quercus robur)*	19	1150	N	12	Crown	Mature	Fair	Good	Mature tree, crown dieback to eastern portion of crown. deadwood over 200mm in diameter.	None at time of survey	B1	599.1	13.8
				E	9	2s								
				S	11	Branch								
				W	10	5s								

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Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T7	Pedunculate oak, *(Quercus robur)*	6	390	N	1	Crown	Mature	Fair	Poor	Heavily cattle damaged and suppressed tree.	None at time of survey	C1	68.9	4.7
				E	4	1s								
				S	6	Branch								
				W	8	2s								
T8	Sessile oak, *(Quercus petraea)*	21	1600	N	13	Crown	Mature	Fair	Good	Crown sparse, dieback in witin crown margins. Significantly sized tree.	None at time of survey	B1	RPA capped	15.0
				E	17	5s								
				S	14	Branch								
				W	14	5s								
T9	Pedunculate oak, *(Quercus robur)*	17	1150	N	13	Crown	Mature	Fair	Good	Crown sparse, dieback in places.	None at time of survey	B1	599.1	13.8
				E	14	2s								
				S	11	Branch								
				W	10	4s								
T10	Sessile oak, *(Quercus petraea)*	19	1640	N	11	Crown	Mature	Fair	Good	Crown sparse, dieback in places. Significant girth, multi-stem tree.	None at time of survey	B1	RPA capped	15.0
				E	11									
				S	13	Branch								
				W	11									
T11	Pedunculate oak, *(Quercus robur)*	18	1260	N	8	Crown	Mature	Fair	Good	Crown sparse, dieback in places. Numerous cavities at round raise buttresses after cattle movements.	None at time of survey	B1	719.2	15.1
				E	13	4s								
				S	11	Branch								
				W	9	5s								
T12	Common ash, *(Fraxinus excelsior)*	18	900	N	8	Crown	Mature	Good	Obstructed	Detailed inspection of stem base not possible due to position of trees atop bank and dense ivy cover.	None at time of survey	B1	366.9	10.8
				E	11	2s								
			est	S	12	Branch								
				W	13	3s								

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Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T13	Pedunculate Oak, *(Quercus robur)*	19	900	N	10	Crown	Mature	Good	Obstructed	Detailed inspection of stem base not possible due to position of trees atop bank and dense ivy cover.	None at time of survey	B1	366.9	10.8
				E	9	4s								
			est	S	13	Branch								
				W	9	5s								
G14pa	Lawson cypress, *(Chamaecyparis lawsoniana)*	8	180	N	3	Crown	Mature	Good	Good	Boundary group of ornamental trees.	None at time of survey	B2	14.7	2.2
				E	3	1s								
			est	S	3	Branch								
				W	3	1s								
G15pa	Common Ash & Birch	4	170	N	2	Crown	Mature	Good	Good	ornamental tree group. bark damage from grazing cattle.	None at time of survey	C2	13.1	2.0
				E	2	3n								
			est avg	S	2	Branch								
				W	2	3n								
T16	Common ash, *(Fraxinus excelsior)*	14	450	N	7	Crown	Mature	Good	Obstructed	Dense ivy prohibits detailed stem inspection.	None at time of survey	B1	91.7	5.4
				E	7	3s								
			est	S	10	Branch								
				W	7	4s								
T17	Common ash, *(Fraxinus excelsior)*	12	350	N	4	Crown	Mature	Poor	Poor	Extensive dieback and crown deadwood.	None at time of survey	C1	55.5	4.2
				E	4	9s								
			est	S	5	Branch								
				W	4	9s								
G18	Common ash and elm	13	400	N	5	Crown	Mature	Good	Good	2x ash 1 x elm	None at time of survey	B1	72.5	4.8
				E	5	4s								
			est	S	5	Branch								
				W	5	4s								

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Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T19	Field maple, *(Acer campestre)*	12	550	N	5	Crown	Mature	Good	Good	Mature field maple adjacent roadside.	None at time of survey	B1	137.0	6.6
				E	5	2s								
			ms est	S	6	Branch								
				W	6	2s								
T20	Beech, *(Fagus sylvatica)*	18	900	N	8	Crown	Mature	Good	Good	Large third party beech. detailed inspection and measurement not possible. 6.5m approx. from kerb to stem.	None at time of survey	A1	366.9	10.8
				E	8	4s								
			est	S	8	Branch								
				W	8	6s								
T21	Common ash, *(Fraxinus excelsior)*	14	464	N	5	Crown	Mature	Good	Good	Dual stem self set tree adjacent residential garden boundary.	None at time of survey	B1	97.5	5.6
				E	5	3s								
			mean	S	5	Branch								
				W	5	4s								

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APPENDIX 3
Cascade Chart for Tree Quality Assessment

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Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of their 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 the 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 • 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 *Note Category U trees can have existing or potential conservation value which it might be desirable to preserve*	Red

	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
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)	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 remedial 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	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

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APPENDIX 4
Root Protection Area Formulas

CALCULATING THE RPA

For single stemmed trees

$$\mathbf{RPA(m^2) = \frac{(stem\ diameter\ (mm)\ @\ 1.5\ m \times 12)^2 \times 3.142}{1000}}$$

For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\mathbf{\sqrt{(stem\ diameter\ 1)^2 + (stem\ diameter\ 2)^2 \ldots + (stem\ diameter\ 5)^2}}$$

For trees with more than five stems, the combine stem diameter is calculated as follows:

$$\mathbf{\sqrt{(mean\ stem\ diameter)^2 \times number\ of\ stems}}$$

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APPENDIX 5
Photographs

Photograph 1 – Image showing two of the mature oak trees, (Foreground), beyond this are trees within the site boundary and should be surveyed if development proposals are planned beyond the five mature oak to the east of the barns.

Photograph 2 – Image showing trees recently removed/pruned to west of Broadford Bridge Road and the topography of both sides of the road.