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ARBORICULTURAL IMPACT ASSESSMENT SURVEY & REPORT

Land at Richards Castle, Herefordshire

Report Reference: BG19.170

April 2019

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This report has been prepared in accordance with guidance issued by the Arboricultural Association.

www.brindlegreen.co.uk

Sheffield Office
Brindle & Green Limited
Horizon House
Whiting Street
Sheffield S8 9QR

Barnsley Office
Brindle & Green Limited
Sergeants House
36 Edderthorpe Lane
Barnsley S73 9AT

Head Office
Brindle & Green Limited
Unit 3 Silverhill Court
Radbourne
Derby DE6 4LY
Tel: 0800 222 9105

London Office
Brindle & Green Limited
Nutter Lane
Wanstead
London E11 2HZ

Kent Office
Brindle & Green Limited
Sandy Lane
Sevenoaks
Kent TN13 3TP


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Report	Name	Signature	Date
Prepared by	Joe Gilmour	[redacted]	05/05/2019
1st Check by	Neil Crofts	[redacted]	21/05/2019
2nd Check by	Neil Crofts	[redacted]	21/05/2019
Issued by (PDF)	Joe Gilmour	[redacted]	21/05/2019
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Project Details

Project carried out by:

Brindle and Green

Unit 3, Silverhill Court
Radbourne
Derby.
DE6 4LY
Head Office: 0800 222 9105
Email: info@brindlegreen.co.uk
Website: www.brindlegreen.co.uk

Project carried out for:

Matt Brown

Res Real Estate Ltd.
Unit 19, Highnam Business Centre
Newant Road
Gloucester
GL2 8DN

Project site:

Land at Richards Castle

Land off B4361
Richards Castle
Herefordshire
SY8 4EQ (Nearest)

Grid Ref. SO 49491 69696

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1 Summary

1.1 Brindle & Green were commissioned by Matt Brown at Res Real Estate Ltd. to undertake an arboricultural survey of land at Richards Castle, Herefordshire (Nearest Postcode: SY8 4EQ). This report summarises any potential arboricultural impacts and outlines a draft tree protection plan in relation to a full planning application for 9 residential plots, access and associated parking bays. The survey was carried out on the 16th April 2019.

1.2 This report is concerned with trees that have the possibility to be impacted as a result of development proposals at land at Richards Castle, Herefordshire. This includes trees within the site boundary as well as any outside the boundary that may be impacted by the development and any subsequent post development activity.

1.3 A Tree Protection Order data (TPO) request was made using Herefordshire council's interactive mapping system. No TPO's, Conservation Area's (CA's) and other regulatory protection was found within the red-line boundary. The North of the site falls in Shropshire council's jurisdiction. Email correspondence with the council revealed an absence of TPO's, CA's or regulatory controls within the site boundary/

1.4 The report and accompanying tree survey schedule are produced in accordance with the guiding principles of British Standard BS5837:2012 *'Trees in Relation to Design Demolition and Construction - Recommendations'.*

1.5 Trees within the site boundary were identified as having an impact on the proposed development. A proposed tree plan with appropriate mitigation measures and a small area of root protection has been proposed for the development and can be seen in Appendix 2 of this report.

Arboricultural Considerations	Recommendations	Timing
Arboricultural	Exclusion fencing and root protection areas should be placed to protect trees to be retained where applicable.	Pre-construction secured as condition of planning.
Replanting/ Planting	Replanting of native broadleaf species, proposed locations shown in Appendix 2 of this report.	Post Construction.
Felling/Clearance	Any felling/shrub removal should be completed outside of the breeding bird	Between October - February (or March –

	season or under ecological supervision.	September under supervision).
CEZ's & Root protection	Construction exclusion zones and geocell root protection should be implemented before the commencement of works to ensure that no damage is sustained to trees aimed at retention (If applicable).	Pre-Construction

2 Introduction

2.1 The purpose of this survey was to provide an assessment of trees which may be impacted by proposals at land at Richards Castle, Herefordshire. A tree survey schedule compliant with the guiding principles of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' is contained within this report and all survey data is recorded in this schedule.

2.2 The site area is approximately 0.4ha and is on the northern edge of the village Richards Castle. The site straddles the Shropshire-Herefordshire border and is comprised of a single arable field, horse stables and roadside hedgerow. The wider area is predominately agricultural to the north, east and west with residential properties to the south. The site has a low arboricultural value with the majority of trees being located outside of site ownership on the south-western boundary.

2.3 Results and recommendations contained within this report have been prepared by an experienced arboriculturalist and are therefore the view of Brindle & Green Limited. The survey is based on information provided by our client, the development proposals, and the results of the desk study and our survey of the site. This report pertains to this information only.

3 Methodology

3.1 The survey was undertaken in accordance with the guiding principles of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' Information recorded during the survey. Information recorded in the survey includes:

3.1.1 **Species** – the species identification is based on visual observations and the common English name of what the trees appeared to be is listed. In the case of groups only the principal species are recorded, other minor species may be omitted.

3.1.2 **Tree Height** – are estimated in metres. Estimated mature heights are given in brackets. In the case of groups, the mean current height is recorded.

3.1.3 **Crown Height** – the height to the lowest branch is estimated in metres. In the case of groups of trees minimum crown height was recorded.

3.1.4 **Trunk Diameters** – measured at 1.5 metres above ground and recorded in millimetres to the nearest 10mm. However, in accordance with British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' where the trunk of any tree divides below 1.5 metres it is considered a multi-stemmed tree and an average is recorded. In the case of groups of trees, the maximum diameter was recorded.

3.1.5 **Crown Spread** – was recorded in metres along each of the cardinal points. In the case of groups of trees, the maximum peripheral spread was recorded.

3.1.6 **Life Stage** – recorded as follows:

NP: **Newly planted** – a tree within 3 years after planting

Y: **Young**– a tree within its first one third of life expectancy

SM: **Semi-mature** – a tree within its second third of life expectancy

M: **Mature** – a tree in its final one third of life expectancy

V: **Veteran** - a tree with habitat features such as wounds or decay. A veteran may be a young tree with a relatively small girth in contrast to an ancient tree but

bearing the 'scars' of age such as decay in the trunk, branches or roots, fungal fruiting bodies, or dead wood.

A: **Ancient** – a tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species and is of interest biologically, aesthetically or culturally because of its age, size and condition.

3.1.7 **The Condition of Trees** - is based upon a preliminary assessment categorised thus:

Good
Fair
Poor
Very Poor/Dead

In the case of groups, the category awarded is that typical of the group.

3.1.8 **Preliminary Recommendations** – works required regardless of development proposals.

3.1.9 **Life Expectancy –** estimated; i.e. given as follows which corresponds with Table 1 of British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations.' - <10, 10+, 20+, 40+.

3.1.10 **BS 5837:2012 Tree Category:**

Cascade Chart for Tree Quality Assessment (see BS5837:2012 for full reference)			
Trees Unsuitable For Retention			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	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. Trees infected with pathogens of significance to the health and/or safety for the 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		
Subcategory	1. Mainly Arboriculture 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)
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 40years; 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
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 150mm	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

3.1.11 **Root Protection Area** - The root protection areas (RPA's) are calculated and recorded in the Tree Survey Schedule where it is expressed both in linear and square metres; it is at this distance/around this area that the tree protective barriers should be erected around any trees to be retained. Where construction is proposed within these areas, special techniques should be employed, and general guidance is therefore provided herein.

3.1.12 **Limitations** - Significant trees included within the plan provided were plotted using a Trimble TDC100 handheld device. Normal error of 1-2m can be experienced using this device however, care was taken to make sure the most accurate reading possible at the time of survey was taken.

4 Arboricultural Impact Assessment

4.1 Presence of Tree Preservation Orders (TPO's) or Conservation Areas (CA's) or Other Regulatory Protection

4.1.1 A Tree Protection Order data (TPO) request was made using Herefordshire council's interactive mapping system. No TPO's, Conservation Area's (CA's) and other regulatory protection was found within the red-line boundary. The North of the site falls in Shropshire council's jurisdiction. Email correspondence with the council revealed an absence of TPO's, CA's or regulatory controls within the site boundary.

4.2 Potential Incompatibilities Between the Layout and the Trees Proposed for Retention

4.2.1 The impact of the development on tree roots is negligible. The current proposals do not interfere with the root protection areas of trees proposed for retention. Therefore, there will be no requirement to install ground protection. However, exclusion zones will be required to protect the root areas and canopies of trees beyond the boundary which slightly overhang the site.

4.2.2 Root retention is vital, reckless destruction of just one of a tree's major roots during careless excavation for construction or services can cause the loss of up to 20 per cent of the root system; this undermines the tree's ability to absorb water and leaves it unstable in high winds. In general, 80-90 per cent of all tree roots are found in the top 600mm of soil and almost 99 per cent of the tree's total root length occurs within the topmost 1m of soil, with some variations depending on soil porosity. The undoubted nuisance that fine root systems create for the development of specific sites must be weighed against the importance that they play in soil stabilisation on sloping ground (acting in a similar way to geotextile matting).

4.3 The Working and Access Space Needed for Construction

4.3.1 There will be no need to provide on-site access via a new road, the proposals suggest that parking will be on private driveways directly off the street. In order to protect trees of high arboricultural value exclusion zones will be placed to protect both the roots and canopies during the duration of the works. Trees on the southern boundary (T2-T13) will be protected by a construction exclusion zone. No work vehicles should enter the

root protection areas of any other retained trees outlined within this report without prior amendments to the mitigation proposed. Building materials must also be stored outside of the root protection area of trees to be retained.

4.4 **Trees proposed for removal and justification to facilitate the development.**

4.4.1 The current proposals do not require the removal of any trees outlined within this report from the site. Group G1 a species poor hedgerow (dominated by hawthorn) running N-S on the eastern boundary is suitable for removal. The removal of this hedgerow will open a suitable viability splay to the proposed development and access. A mixed species hedgerow with interspaced native broadleaf trees is proposed to offset the loss of the hawthorn hedgerow from the site (Appendix 4).

4.5 **Mitigatory Replanting/planting**

4.5.1 The scheme will incorporate an area of boundary planting/hedgerow with interspaced native trees. Street tree and garden tree planting is also proposed across the development. Not only will this increase the amenity and aesthetics of the development but by planting a mix of native broadleaves will provide more viable habitat for wildlife on the site. See Appendix 2 for proposed planting locations.

4.6 **Proximity of Trees to Structures – the Default Position – Development Outside of the RPA or Technical Solutions Where There is an Overriding Justification**

4.6.1 Stout fencing and construction exclusion zones (CEZ) should be put in place before the commencement of works to protect trees, T1 and T2-T13. Where applicable the ecotone/shrubbery between the tree and the proposed location may need to be cut back and reduced to incorporate the fencing (Appendix 2). All fencing should be implemented before the commencement of building works and stay intact for the duration. Regular checks of the stout fencing should be carried out to ensure it remains intact. See Appendix 2 for the proposed location of exclusion fencing.

4.6.2 All structures are to be placed well outside of the RPA's of retained trees and therefore exceeds the recommendations of BS 5837:2012. However, the diversion of the public foul sewer with easement will show minimal overlap. Due to the topography produced by the stream off-site to the South and the fact the site is raised several metres above

the trees to the south there is unlikely to be any substantial root-mass located in this location

4.6.3 Overall the processes of construction is highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report are always adhered to by the contractors e.g. the positioning of a stout fence between the retained trees construction activities is placed prior to commencement of works and remains intact and in position throughout the duration of the construction activities.

4.7 Shading – Buildings and Open space, Privacy and Screening, Direct Damage, Future Pressure for Removal and Seasonal Nuisance

4.7.1 Shading will have little impact on the proposed plans due to the distance of retained trees from the planned residential buildings. A shading plan for T1 through to T13 can be seen in Appendix 1.

4.7.2 The impact of trees on buildings and vice versa and allowance for future growth have all been considered in the siting of the proposed plans. Tree size, future growth, light/shading, leaf and fruit nuisance etc have received due attention and are not considered to be an issue.

5 Conclusion

5.1 All individual trees identified within this report are to be retained and care taken to prevent damage during the construction period. Group G1 a hawthorn hedgerow to the East of the site is proposed for removal to open a visibility splay to the site entrance.

5.2 Site clearance and any felling should take place outside of the breeding bird season to prevent disturbance which runs from March through to September. Alternatively, this may be completed under ecological supervision/ reasonable avoidance measures.

5.3 The draft tree plan is subject to discussion and we endeavour to produce a pragmatic approach to the subsequent Arboricultural Method Statement and final tree retention plan.

5.4 Due to the nature of the development there is unlikely to be any major impacts on trees with higher landscape and amenity values if the CEZ is implemented (Appendix 2). Fencing should be placed prior to any construction works and can be removed after the works are completed. Appendix 3 provides details of the fencing requirements for construction exclusion zones.

5.5 New planting using a matrix of native species, will increase the amenity value of the site and provide new habitat. A native species rich hedgerow to the West will offset the loss of G1. Suggested locations for replanting are shown in Appendix 2.

6 Issues to Be Addressed Within the Method Statement

6.1 The method for installing CEZ locations.

6.2 Replanting/new planting schedule with species selection and methodology of implementation.

Appendix 1: Tree Survey Schedule

Tree ID	Common Name	Maturity	Height and direction of first significant branch (m)	Height (m)	No. of Stems	Calculated Stem Diameter (mm)	Radius of Nominal Circle (m)	RPA^(m2)	Crown Spread (m)				Crown Height (m)				Crown	Stem	Basal Area	BS5837 Category	Subcategories	Life Expectancy	Phys Condition	Comment
									N	E	S	W	N	E	S	W								
T1 #	Goat Willow	Mature	NE 2.5	17	1	750	9.0	254.5	5	7	4	5	3	2.5	3.5	3	Good	Ivy	Fair	B	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Good	Large boundary tree, impossible to reach the base due to the covering of bracken and the fencing. Growing next to the stream to the N of the tree, roots likely exposed. Overall appears to be in good health. Sever ivy if possible.
T2	Common Alder	Mature	N 5	18	5	230	2.8	23.9	7	4	3	4	4	3.5	5	4	Good	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Good	Boundary tree, outside of ownership. Should have no impact on the proposals.
T3 #	Common Hawthorn	Semi-mature	N/A	4.5	1	90	1.1	3.7	1	2	1.5	2	0.5	0.5	0.5	0.5	Good	Fair	Fair	C	N/A	20 to 40 yrs	Good	Immature hawthorn tree on a boundary line, can be removed if required.
T4 #	Common Ash	Mature	S 5	20	1	400	4.8	72.4	3	4.5	3	2.5	8	6	6	9	Fair	Good	Good	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Good	In adjacent garden, other side of the stream, will not impact the development.
T5	Sycamore	Semi-mature	W 3	15	1	290	3.5	38.0	3	6	3	4	3	4.5	4	4	Fair	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	On the boundary, no action required.
T6	Common Alder	Semi-mature	S 2.5	16	2	155	1.9	10.9	2	1.5	3	3	6	4	4	5	Fair	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	On the boundary, no action required.
T7	Sycamore	Mature	E 6	16	2	200	2.4	18.1	2	2.5	3	1.5	7	5	6	8	Fair	Ivy	Poor	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	2 small leading stems rubbing at approx. 4m. Growing from a large stump which has previously been removed.

T8	Sycamore	Semi-mature	SE 3	15	1	240	2.9	26.1	1.5	2	2	1	6	5	5	6	Fair	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	On the boundary, no action required.
T9 #	Willow sp.	Mature	S 2.5	10	1	600	7.2	162.9	4	3	4	4	0.5	1	2	0.5	Fair	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	Very large ivy-covered stump of mature willow, shoots developing into leading stems from epicormic growth (8+ are >180mm+ diameter). Hangs over stream. No action required.
T10	Common Alder	Semi-mature	NW 3	14	2	190	2.3	16.3	2	2	2	2	1	1	3	4	Fair	Ivy	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	On the boundary, overhangs the site with a slight lean to the North, which is compensated by growth, can be pruned back if required. Evident damage to base which has healed over time, likely bark inclusion in this location.
T 11 #	Common Ash	Semi-mature	N 4	12	1	200	2.4	18.1	2	2	1	1	5	4	5	5	Fair	Fair	Poor	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Fair	Lean to the N compensated by growth, unlikely to impact the development. Evident included bark at the base from a healed wound, likely branch, co-dominant stem loss.
T12 #	Willow sp.	Mature	SW 3	19	1	480	5.8	104.2	3	5	3	2	4	3	3	4	Fair	Fair	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Good	Outside of ownership, lean to the SW.
T13 #	Sycamore	Mature	SW 4	18	1	460	5.5	95.7	4	5	3	1	6	5	4	4	Fair	Fair	Fair	C	1 Arboricultural Values;2 Landscape Values	20 to 40 yrs	Good	Outside of ownership, lean to the SW.

*RPA = The minimum distance, measured from the tree's trunk, at which tree protective barriers should be erected.

**RPA = The minimum area in M^2 around which tree protective barriers should be erected.

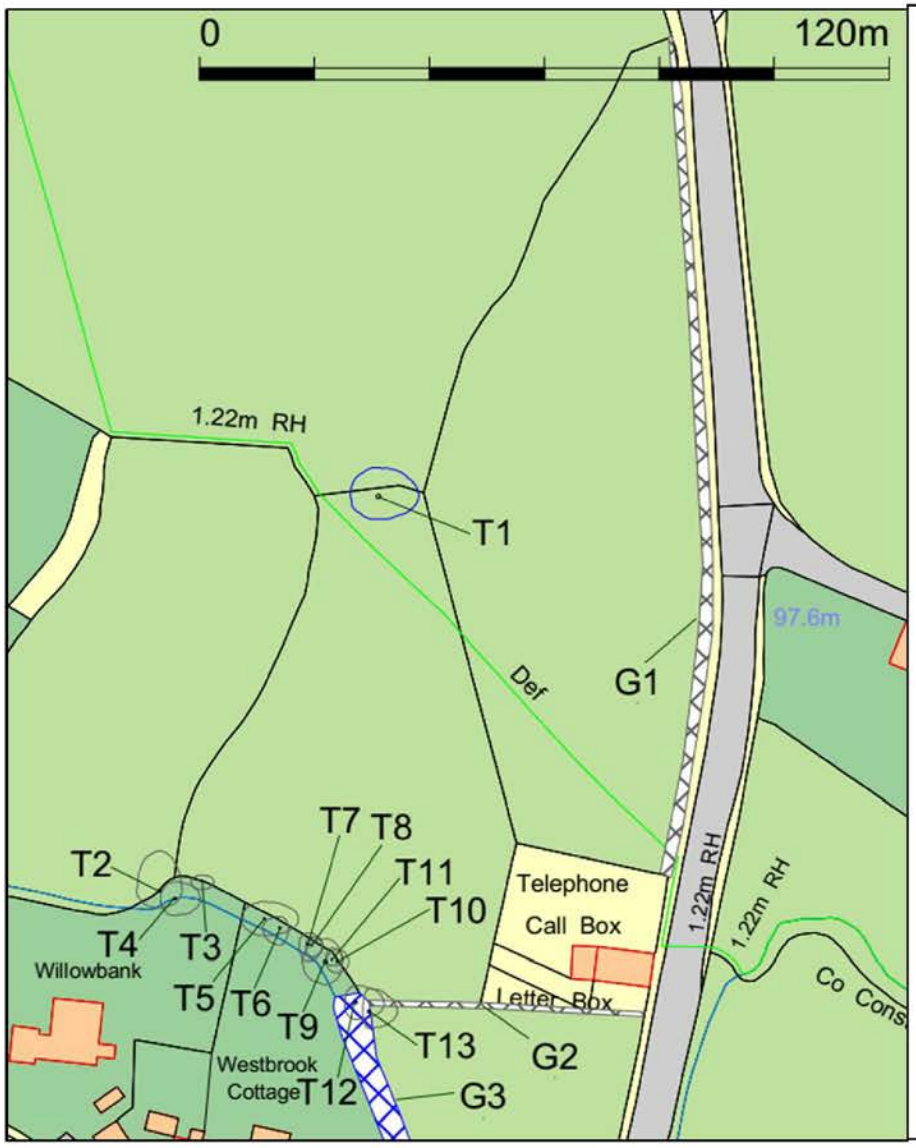
#Access restricted, inspection limited, dimensions limited.

Key: **Life Stage** – recorded as follows:

NP: Newly planted – a tree within 3 years after planting
Y: Young– a tree within its first one third of life expectancy
SM: Semi-mature – a tree within its second third of life expectancy
M: Mature – a tree in its final one third of life expectancy
V: Veteran - a tree with habitat features such as wounds or decay. A veteran may be a young tree with a relatively small girth in contrast to an ancient tree but bearing the 'scars' of age such as decay in the trunk, branches or roots, fungal fruiting bodies, or dead wood.
A: Ancient – a tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species and is of interest biologically, aesthetically or culturally because of its age, size and condition

Group ID	Species	BS5837 Category	Description/Comments
G1	Common Hawthorn, Common Elder	C	Species poor hedgerow running N-S adjacent to the main road, this hedgerow is suitable for removal to open a visibility splay to the site's entrance/exit. Managed to a height of 1-2m. Removal of the hedgerow should consider the possibility of nesting birds.
G2	Common Hawthorn	C	Species poor hedgerow comprising of managed hawthorn to 0.5-1m. No action required.
G3	Common Hawthorn, Common Ash, Alder, Crack Willow, Goat Willow, Sycamore, Willow sp.	B	Mixed species boundary group to the South of the site, a continuation of the tree screen to the South-West of the site. Beyond the impact of the development. No action required.

Appendix 2: Draft Tree Plan



Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Tree and Group Locations with Quality Assessment

Drawn by: JG

Date: 20/05/2019

Legend:

- Category A Tree Canopy Spread & Group Locations
- Category B Tree Canopy Spread & Group Location
- Category C Tree Canopy Spread & Group Locations
- Category U Tree Canopy Spread & Group Locations

Brindle & Green Ecological Consultants Ltd
ARBORICULTURALISTS FOR BUSINESS
www.brindlegreen.co.uk
TEL: 0800 222 9105

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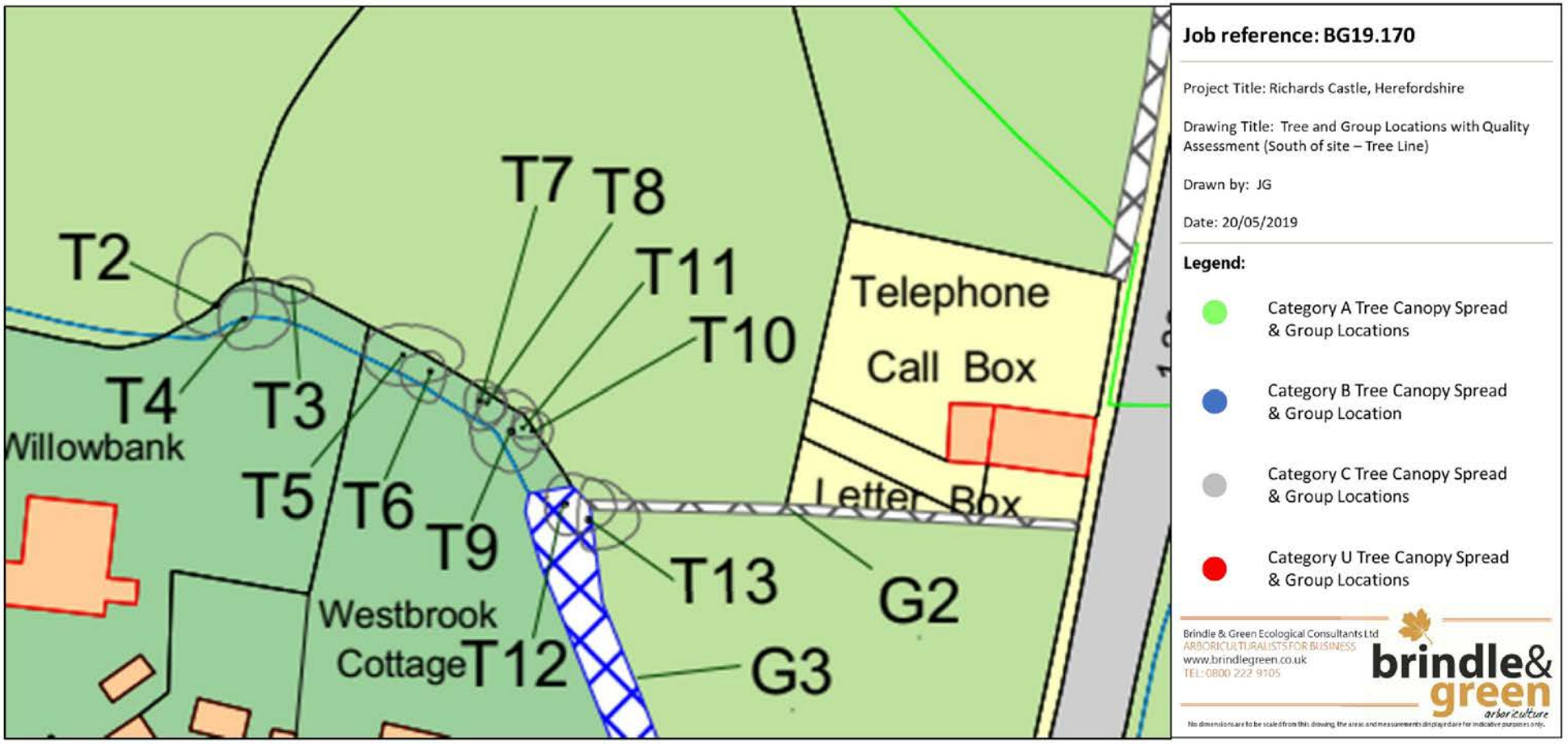
T7
T8
T2
T11
T10
Telephone
Call Box
T4
T3
Willowbank
T5
T6
T9
Letter Box
T13
G2
Westbrook
Cottage
T12
G3
Job reference: BG19.170
Project Title: Richards Castle, Herefordshire
Drawing Title: Tree and Group Locations with Quality Assessment (South of site – Tree Line)
Drawn by: JG
Date: 20/05/2019
Legend:
Category A Tree Canopy Spread & Group Locations
Category B Tree Canopy Spread & Group Location
Category C Tree Canopy Spread & Group Locations
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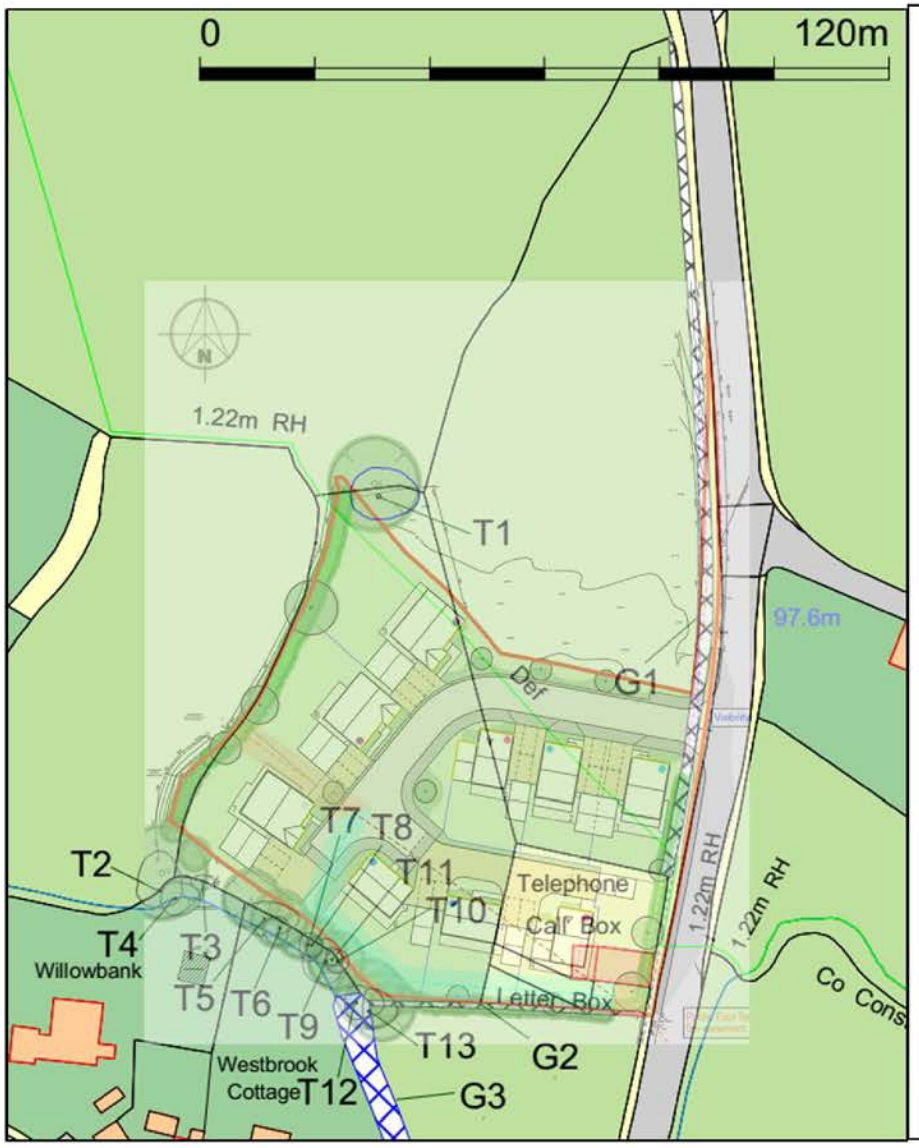

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Tree and Group Locations with Quality Assessment (With Proposed plans overlaid)

Drawn by: JG

Date: 20/05/2019

Legend:

- Category A Tree Canopy Spread & Group Locations
- Category B Tree Canopy Spread & Group Location
- Category C Tree Canopy Spread & Group Locations
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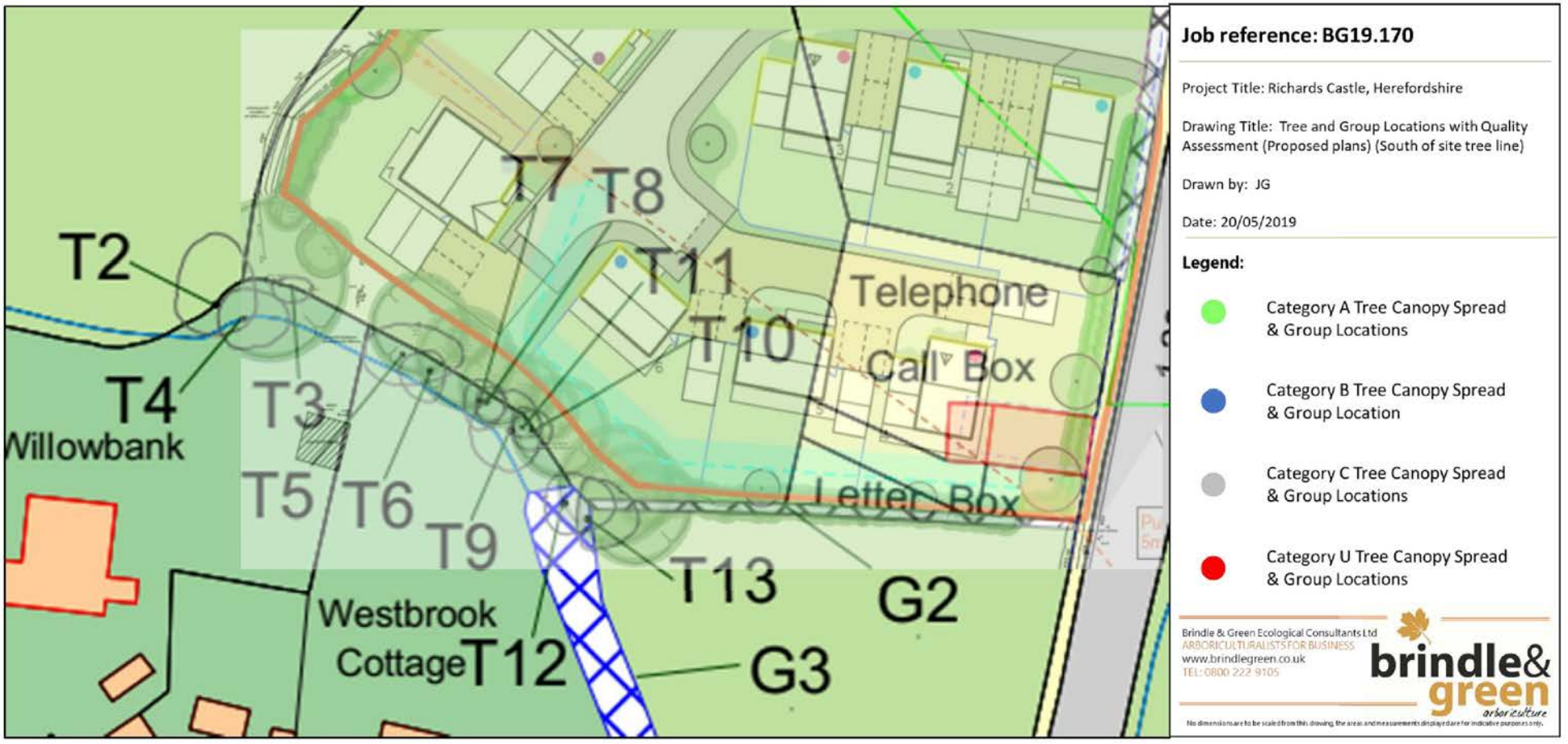
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Telephone
Call Box
Letter Box
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G2
Westbrook
Cottage
T12
G3
Job reference: BG19.170
Project Title: Richards Castle, Herefordshire
Drawing Title: Tree and Group Locations with Quality Assessment (Proposed plans) (South of site tree line)
Drawn by: JG
Date: 20/05/2019
Legend:
Category A Tree Canopy Spread & Group Locations
Category B Tree Canopy Spread & Group Location
Category C Tree Canopy Spread & Group Locations
Category U Tree Canopy Spread & Group Locations
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TEL: 0800 222 9105
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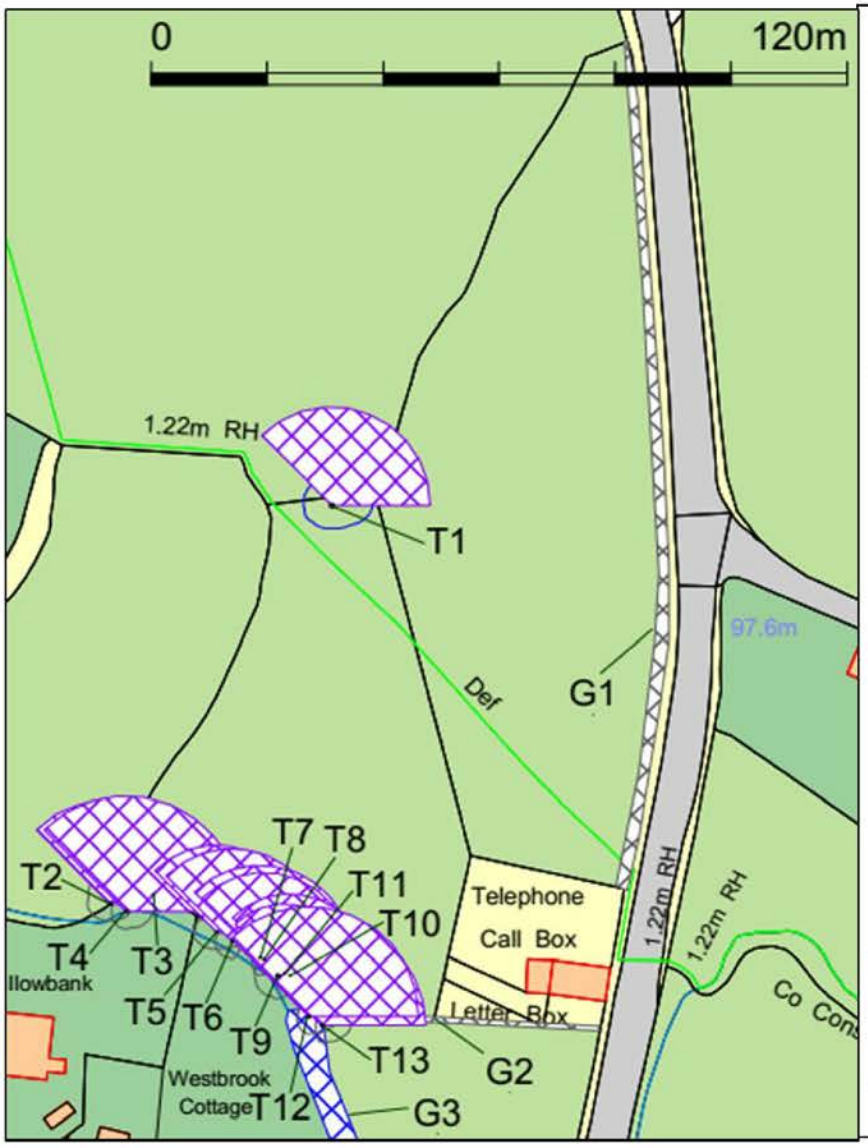

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Tree and Group Locations with Quality Assessment (With Proposed plans overlaid)

Drawn by: JG

Date: 20/05/2019

Legend:

Current Shading

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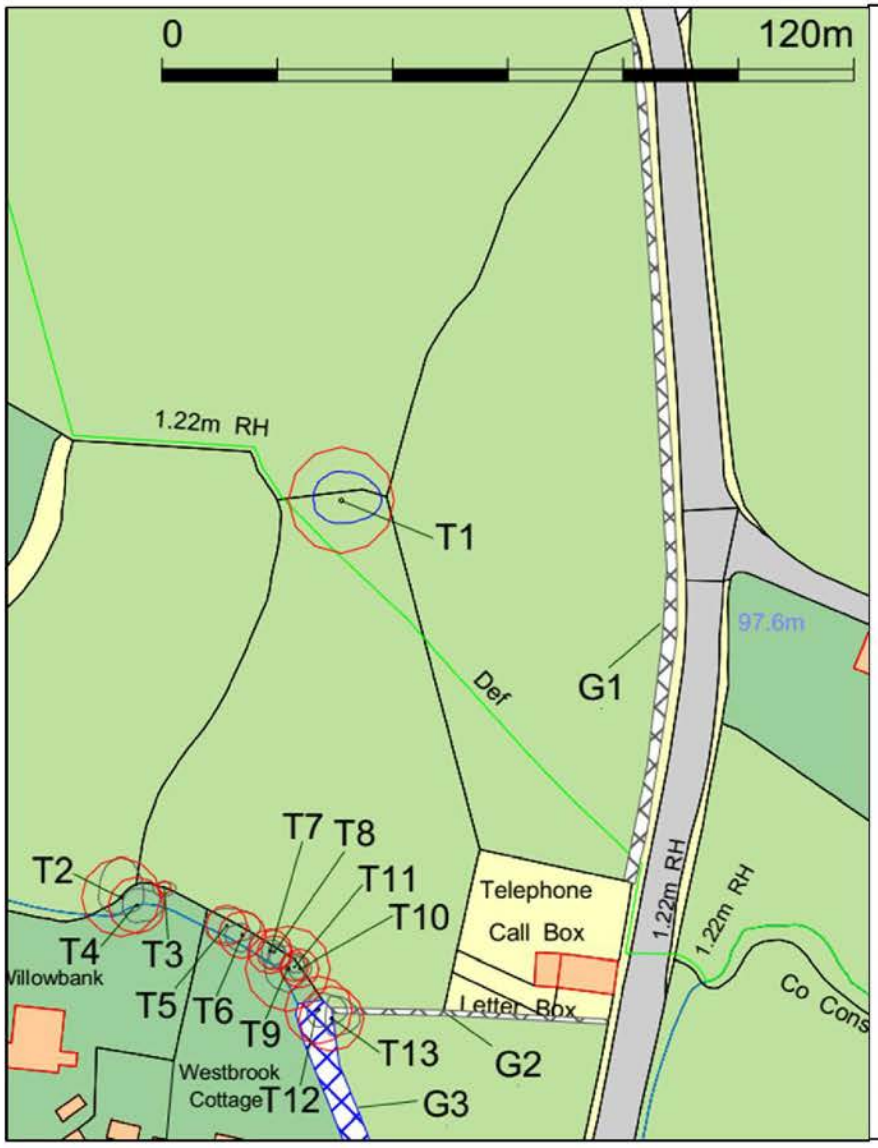

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Root Protection Area

Drawn by: JG

Date: 20/05/2019

Legend:

- Root Protection Area (RPA)
- Category A Tree Canopy Spread
- Category B Tree Canopy Spread
- Category C Tree Canopy Spread
- Category U Tree Canopy Spread

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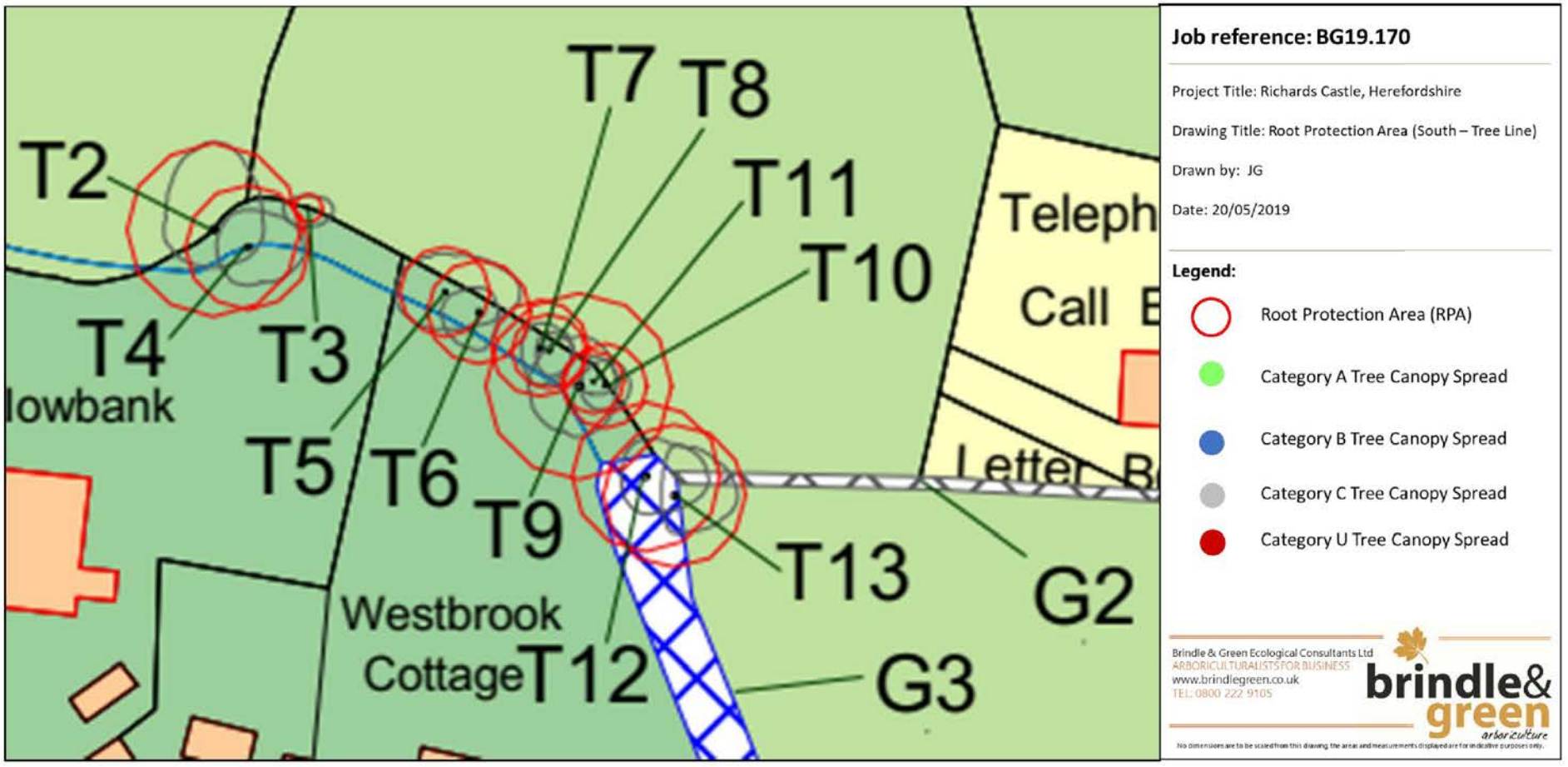
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Cottage
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G3
Job reference: BG19.170
Project Title: Richards Castle, Herefordshire
Drawing Title: Root Protection Area (South – Tree Line)
Drawn by: JG
Date: 20/05/2019
Legend:
Root Protection Area (RPA)
Category A Tree Canopy Spread
Category B Tree Canopy Spread
Category C Tree Canopy Spread
Category U Tree Canopy Spread
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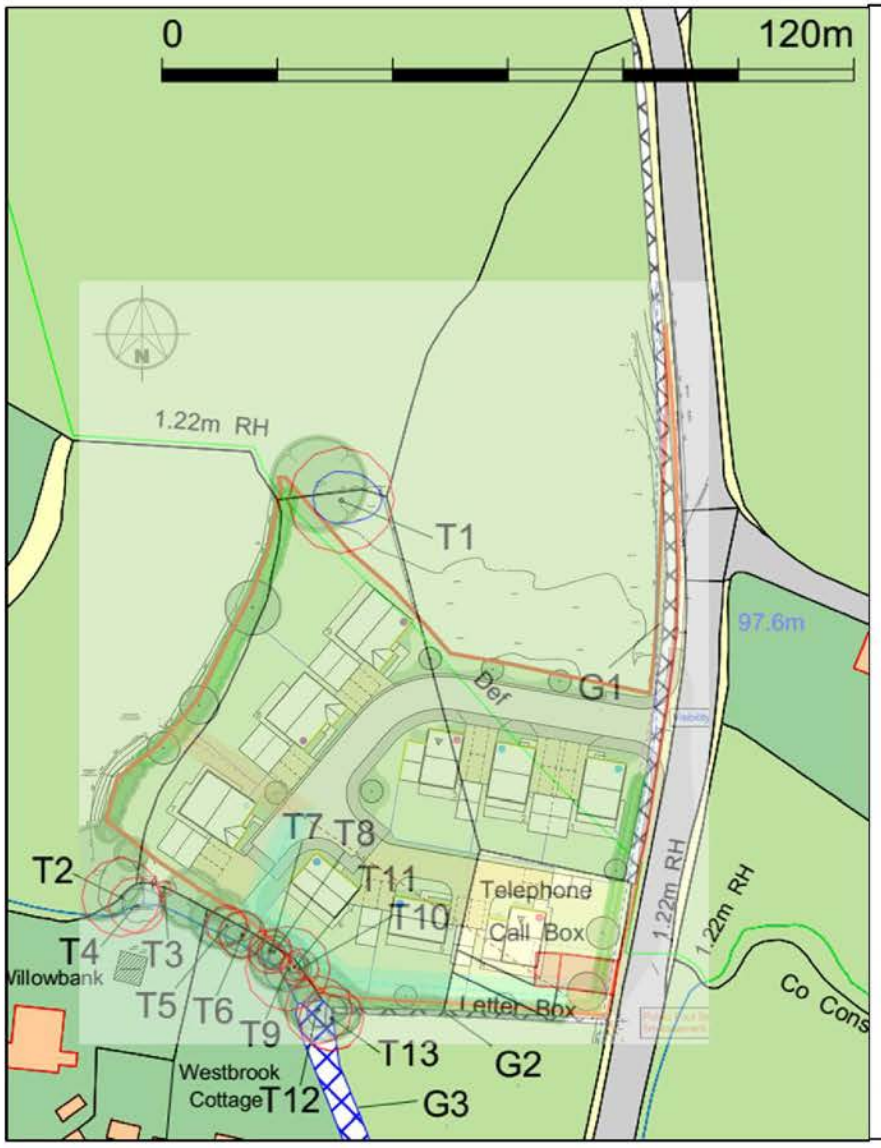

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Root Protection Area (With proposed plans overlaid)

Drawn by: JG

Date: 20/05/2019

Legend:

- Root Protection Area (RPA)
- Category A Tree Canopy Spread
- Category B Tree Canopy Spread
- Category C Tree Canopy Spread
- Category U Tree Canopy Spread

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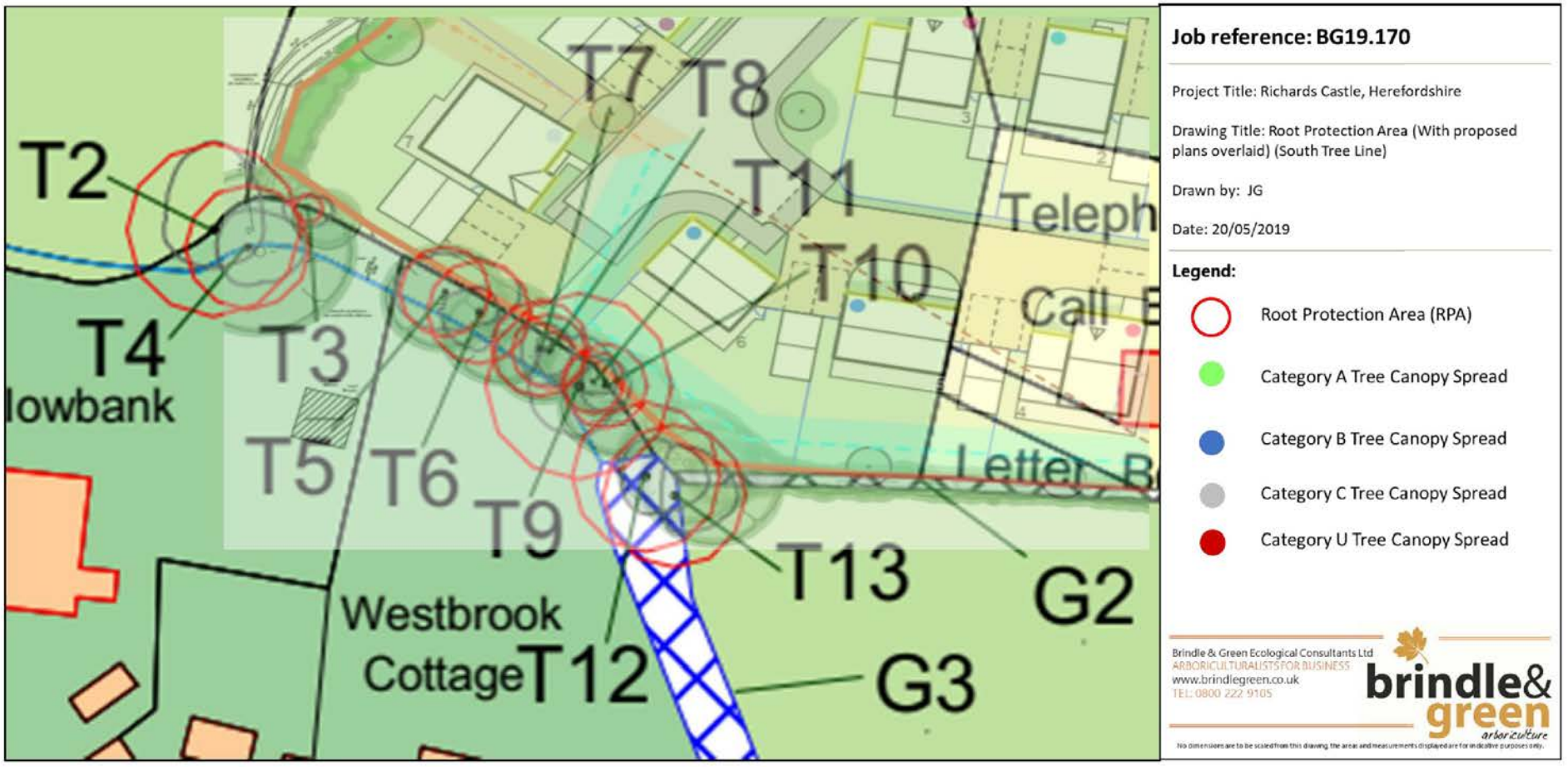
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Call
Letter
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G2
Westbrook
Cottage
T12
G3
Job reference: BG19.170
Project Title: Richards Castle, Herefordshire
Drawing Title: Root Protection Area (With proposed plans overlaid) (South Tree Line)
Drawn by: JG
Date: 20/05/2019
Legend:
Root Protection Area (RPA)
Category A Tree Canopy Spread
Category B Tree Canopy Spread
Category C Tree Canopy Spread
Category U Tree Canopy Spread
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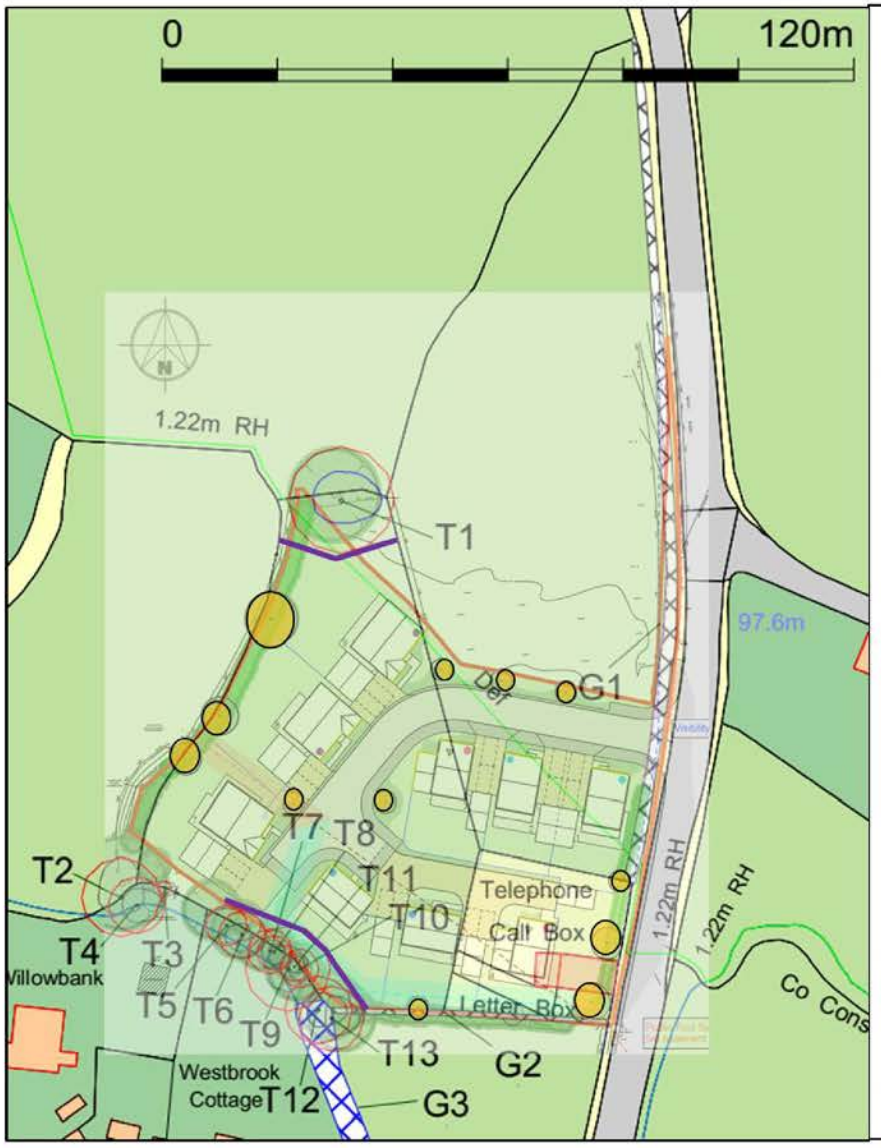

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Draft Tree Protection & mitigation Plan (With proposed plans overlaid)

Drawn by: JG

Date: 20/05/2019

Legend:

- Suggested Location of Exclusion Fencing
- RPA (Root Protection Area)
- Suggested Location of Ground Protection
- Suggested Location for Replanting

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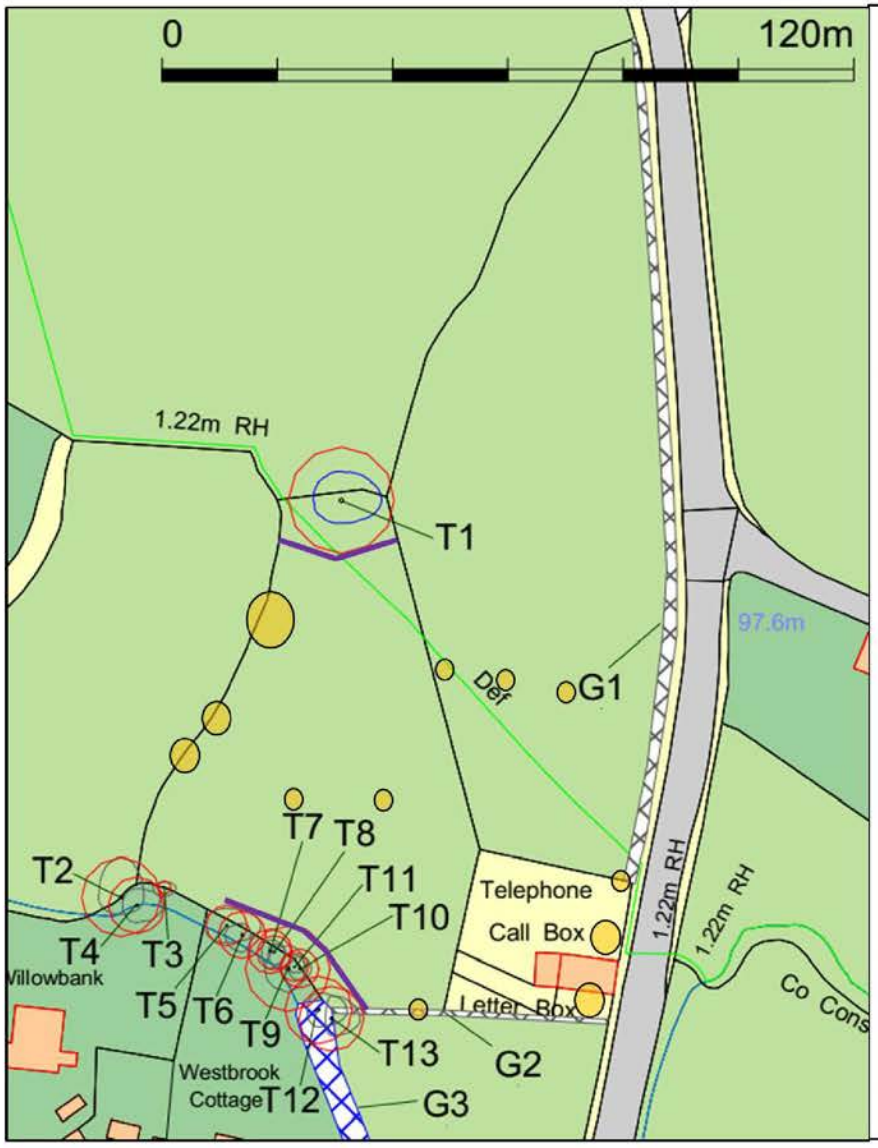

Job reference: BG19.170

Project Title: Richards Castle, Herefordshire

Drawing Title: Draft Tree Protection & mitigation Plan

Drawn by: JG

Date: 20/05/2019

Legend:

- Suggested Location of Exclusion Fencing
- RPA (Root Protection Area)
- Suggested Location of Ground Protection
- Suggested Location for Replanting

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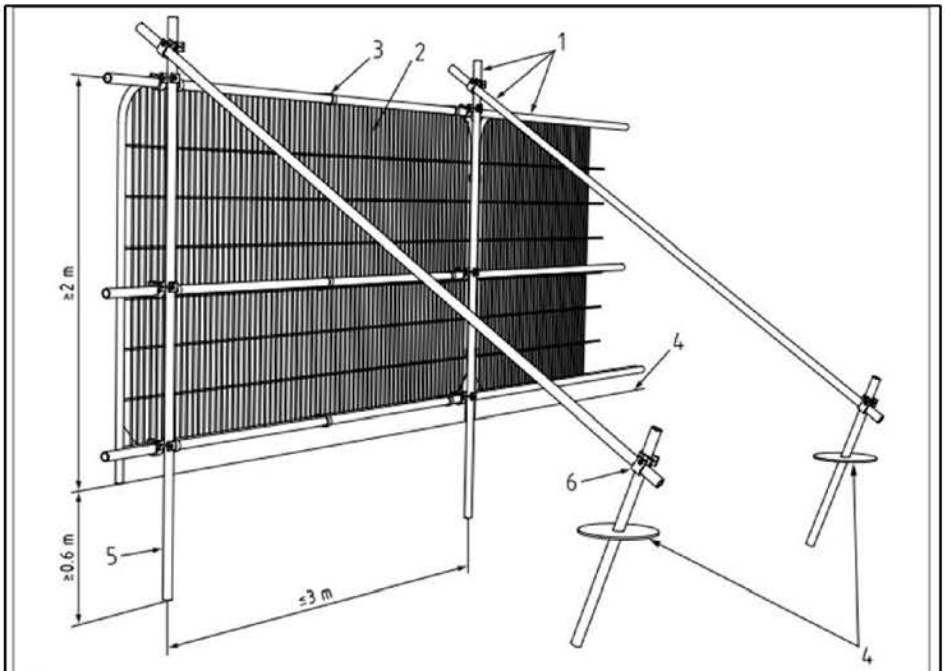
Appendix 3: Tree Retention General Guidance

1. **Below Ground Constraints** to achieve any development, various construction activities are required and great care and consideration needs to be given as to how such activity can proceed whilst avoiding damage to retained trees.

1.1. In order to avoid damage to their roots, trees should be protected using protective barriers as are detailed in British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' and as illustrated in Figures 1 and 3. Such barriers should be erected around the RPA prior to the commencement of the demolition/construction activity; it must remain in situ and intact until completion. The area within these barriers should, with some exceptions be considered sacrosanct, and no work should be permitted within them. In an effort to ensure any tree protective barriers remain during construction, it is further advised that they carry signage as per Figure 2 and that the Site Agent is briefed accordingly.

1.2. Tree Protective Barriers should also be erected, prior to the commencement of construction, around those areas identified for soft landscaping/tree planting so as to protect the soil from compaction and denaturing. Correct setting out of the barriers and ground protection should be confirmed on site by the project arboriculturist prior to the commencement of any other operations on site.

1.3. Where space is required within the RPA to facilitate the erection of scaffold this may be satisfactorily achieved incorporating ground protection within the scaffold structure as illustrated in Figure 3 above.



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

Figure 1 – Tree Protection Barrier

British Standard 5837, (2012),), *'Trees in Relation to Construction: Recommendations', Page 20*

Figure 2 - Barrier Notice

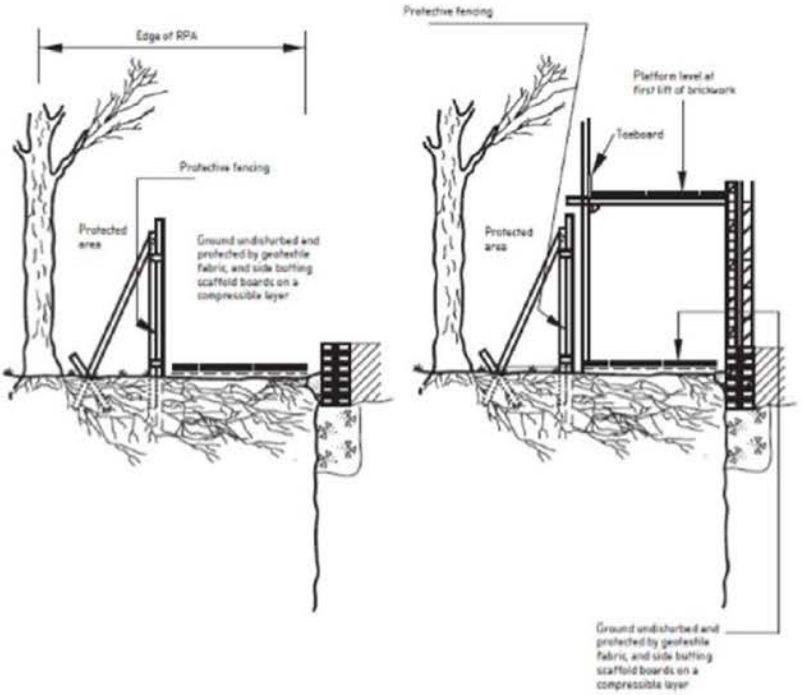


Figure 3 – Adapted Barrier Incorporating Temporary Ground Protection

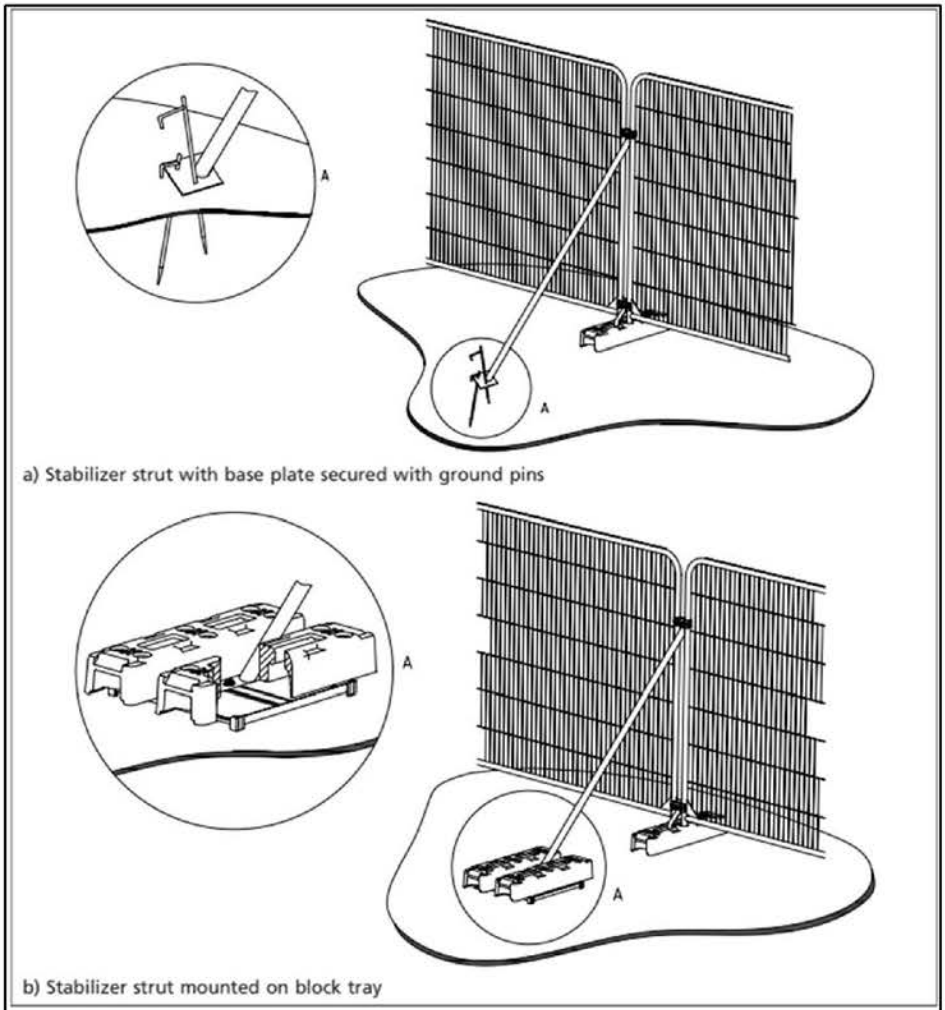


Figure 4 - Examples of above-ground stabilizing systems
British Standard 5837, (2012), *'Trees in Relation to Construction: Recommendations', Page 21*

2. **Above Ground Constraints**: Consideration must also be given to the aerial parts of the tree in relation to any construction; particularly residential buildings. Conflict frequently arises where dwellings are placed close to trees giving rise to concerns relating to shade, falling debris such as leaves and twigs and from apprehension arising from a perceived threat of tree failure. These concerns can often be overcome, in part at least, by carefully ensuring adequate useable garden space is provided and is not dominated by trees and that principal windows face away from trees; in some instances it may be appropriate to locate glazed panels into the roof structure. The LPA are likely to resist any proposal that results in built structures close to trees or that makes inadequate provision for their future growth. Usually, and particularly in the case of immature trees, the distances required to avoid conflict will be greater than

those expressed as the RPA. It is however, equally important to note that issues arising from shade are often overstated and that some shade is not only tolerable but may be beneficial. It is also important to bear in mind that different tree species cast different shade patterns depending upon juxtaposition, size, habit, canopy density, evergreen/deciduous. The following guidance is given by the Building Research Establishment (BRE): "Tree locations are ... important; deciduous species are best because they are leafless when solar gains are most valuable, while providing some shade in summer." (BR380 Page 69) Deciduous trees give shade in summer but allow access to sunlight in winter." (BR 209 page 22). "The question of whether trees aforementioned should be included in the (solar gain*) calculation depends upon the type of shade they produce. Normally, trees and shrubs need not be included, partly because their shapes are impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building. This applies especially to deciduous trees." (BR209 page 13).

3. ARBORICULTURALLY ACCEPTABLE CONSTRUCTION METHODS WITHIN RPA

3.1. Foundations: in order to maximise a sites development potential, it may be possible to employ special foundation design such as mini/micro pile and suspended beam or a cantilevered foundation. These designs enable construction within the RPA as they limit excavation to a minimum. The location of any mini piles would need to be flexible so as to avoid damage to major roots and the necessary excavation for the piles may need to be carried out by hand; the piles should be sleeved so as to contain concrete which contains 'tree-toxic' chemicals. In these circumstances a suspended floor slab will need to be incorporated and the void beneath should be externally vented so as not to inhibit gaseous exchange, in some instances i.e. where more than 20% of the RPA is to be covered, there will need to be provision for the redistribution of rainwater beneath the slab. Where pile foundations are to be employed, consideration needs to be given to the selection of the type of piling rig so as to avoid conflict with low, overhanging tree branches.

3.2. **Hard Surfacing - New:** It is permissible to construct hard surfacing for drives and paths within the RPA; however, it can have implications for tree roots. These implications can often be overcome and/or minimised by employing a 'no-dig' construction (see Appendix 3) methods. These techniques result in structures which are load bearing and negate the need for deep excavation.

Any final surface must be porous so as to permit gaseous exchange and moisture percolation. Further advice of a structural engineer must be sought to design the final specification in accordance with these parameters, with the final design being agreed with a Chartered Arboriculturist.

3.3. **Hard Surfacing - Existing**: Where hard surfacing exists within the area defined as the RPA, it is acceptable to erect protective barriers at the extent of that hard surface, since the surface itself will afford protection to any tree roots beneath. However, where is proposed to remove/regrade existing hard surfacing care must be taken to avoid collision between overhanging tree branches and passing construction traffic. It is advised that to minimise root disturbance the existing surface is broken and gathered for disposal using hand operated tools, any backfilling must utilise top quality top soil laid at approximately 50mm deep with a composted bark mulch laid over that to a maximum depth of 75mm; in the long term this approach brings a positive arboricultural impact.

3.4. **Temporary Site Accommodation** – Note 2 Page 20 of BS 5837 (2012) advises that in some circumstances it is appropriate to use site cabins as components of the tree protective barriers where they can serve as an effective means of protecting the soil from many of the construction related activities. Further advice of a Chartered Arboriculturist should be sought should this matter be of relevance or advantageous.

3.5. **Temporary Ground Protection** - In some instances it may be advantageous to work within the RPA e.g. access a site, either for pedestrians or machinery. BS5837 (2012) acknowledges this as a possibility and systems which dissipate any load applied, thus avoiding soil compaction and denaturing, are to be used, also new temporary ground protection could comprise one of the following:

A) For pedestrian movements only, a single thickness of scaffold boards should be placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile.

B) For pedestrian operated plant up to a gross weight of 2t, proprietary, inter-linked ground protection boards could be placed on top of a compression resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile.

C) For wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. pre-cast reinforced concrete slabs) could be employed.

D) An engineer should be consulted regarding the design of a temporary access with the final specification being agreed with a Chartered Arboriculturist.

4. OTHER CONSIDERATIONS

4.1. Trees Subject to Statutory Controls: No attempt has been made to establish the existence of any statutory controls; the following is given as guidance. Trees and hedgerows can be subject to statutory control and severe penalties can result from unauthorised works or damage. It is recommended that prior to commencement of any tree works the Local Planning Authority (LPA) are contacted. When proposing to do works to trees within a Conservation Area, with some exceptions, eg the implementation of works directly necessary to implement a full planning permission, six weeks written notice must be given to the LPA, this notice need not take any form other than a written specification of what is proposed and a plan illustrating the position of the tree(s). This notice is often referred to as a Section 211 Notice. Many LPA's prefer that their standard pro-forma is submitted to ensure the necessary detail is included in the notice; whilst such cannot be strictly required it can assist in a speedy outcome.

4.1.1. Having received the notice the LPA has essentially only one of two options at its disposal i.e.:

- Impose a TPO in respect of those trees/some of those trees subject to the notice. This prevents any works being carried out without the express, written consent of the LPA,

Or

- Do nothing. It is considered best practice for an LPA to acknowledge receipt of the notice but there is no obligation for it to do so. After six weeks of serving the notice the tree owner may proceed with the works detailed in the Section 211 Notice. The LPA cannot, in response to a Section 211 Notice, issue a conditional consent. TPO's are made in the interests of preserving amenity, usually taken to mean public visual amenity. Trees

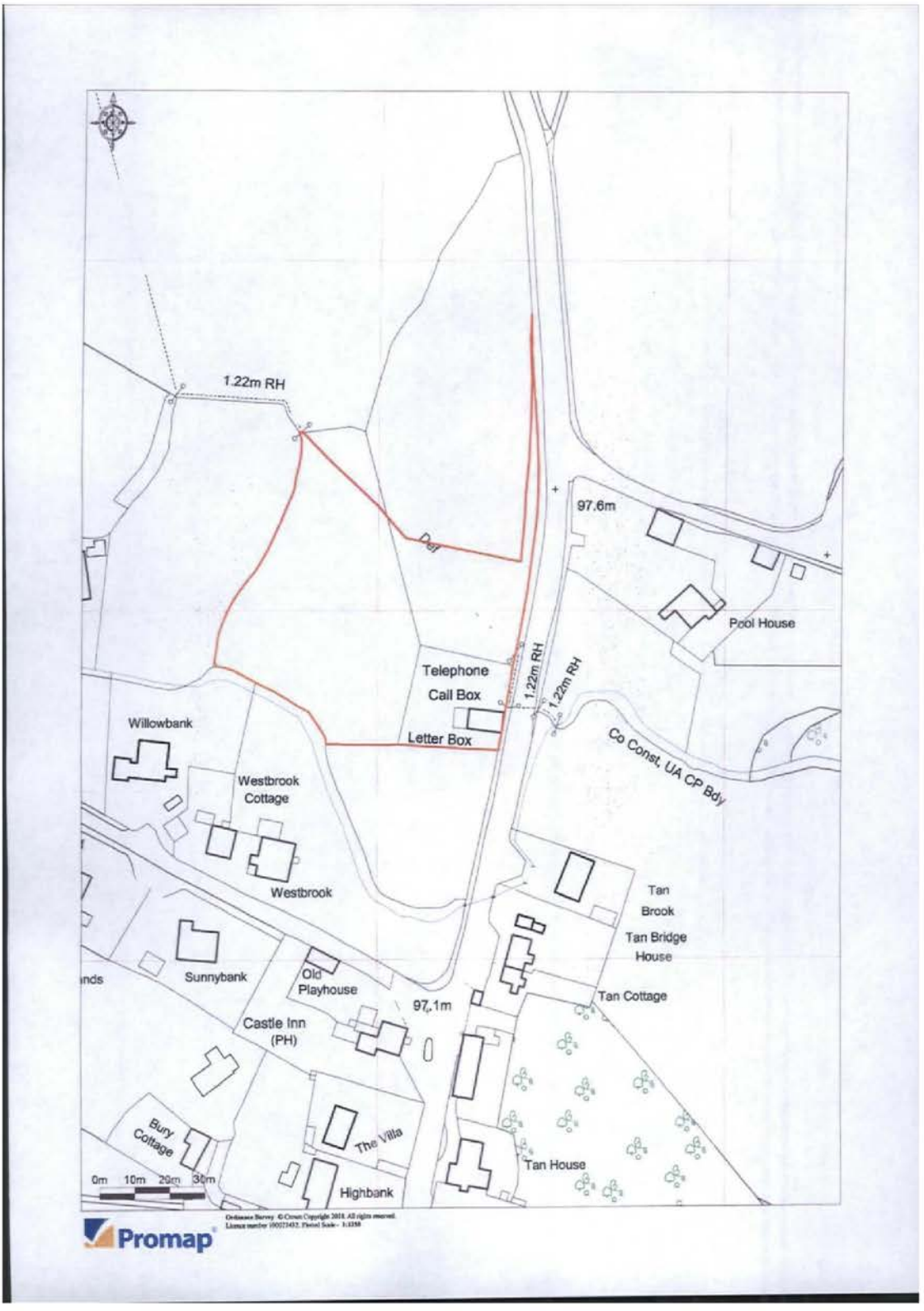
largely removed from public view and which have little visual impact are not usually made the subject of a TPO. The written consent of the LPA must be obtained prior to undertaking works to trees subject to TPO unless, as with trees in Conservation Areas, certain exemptions apply. With regard to trees subject to TPO's it is a requirement that a standardized application form is used; this form is available from the LPA. Where trees are protected Brindle & Green Limited are happy to act as the client's agent, liaising as necessary with the LPA and producing the written submissions/notices/applications as required.

4.2. **Trees and Wildlife**: Trees play host to nesting birds many of which are protected by law. All British bat species are also protected and can be found in trees. Great care needs to be taken to avoid disturbance and consideration should be given to the timing of tree works in order to avoid disturbance. Where the presence of protected species is suspected, Natural England should be contacted for advice.

4.3. **Implementation of Tree Works**: Guidance on hiring an Arborist is available from Brindle & Green Ltd. Also, the Arboricultural Association's Register of Contractors is available free from Ullenwood Court, Ullenwood, Cheltenham, Gloucestershire, GL53 9QS (Telephone 01242 522152 , www.trees.org.uk). Any appointed contractor should carry out all tree works to BS 3998 (2010) 'Recommendations for Tree Work.'

4.4. **New Planting**: It is possible that any planning permission issued will carry a condition requiring new tree planting, particularly in instances where a proposal involves the removal of trees. Further advice is available upon request.

Appendix 4: Proposed Plans



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NOTES

REVISIONS

REV. DATE - ORIGIN - CHECKED - NOTES

- 11.03.19 - BH - RJF:
Drawing created.

DRAWING TITLE

Proposed Site Plan

PROJECT

Land at Richards Castle

CLIENT

Res Real Estate Ltd

SCALE 1:500@A3

DATE March 2019

Quattro design architects

DRAWING NO. **REV**

6043-F-110 -

Matthews Warehouse, High Orchard Street
Gloucester Quays, GL2 5QY T: 01452 424024