

BS5837:2012 Tree survey

For
East Grinstead Sports Club,
Salt Hill Road,
East Grinstead, West Sussex,
RH19 4JU.

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**Tree Survey with Preliminary
Tree Constraints.**

**Assessed in accordance with
BS5837:2012**

**'Trees in relation to design, demolition and construction
-Recommendations'**

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1.0 Introduction

1.1 Client Instruction

Simon Ffoulkes Tree Consulting was instructed by Les Humphrey Associates, Architects, to undertake a preliminary tree survey at East Grinstead Sports Club accordance with BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations.

- 1.1.1 The reason for a BS5837 survey is to comply with The Town and Country Act 1990 legislation, requiring consultation on trees that will or may be affected by the construction process
- 1.1.2 As part of the survey a Tree Constraints plan was to be formulated to show the trees that would be a constraint to the building process.
- 1.1.3 The staff car park has been extended into the overgrown area close to woodland and there is the requirement to show how the trees that are a constraint to the extension can be protected to ensure the long term survival of the surrounding trees that are a constraint to the building process.
- 1.1.4 The requirement of the survey was;
 - To record relevant information about the trees on the topographical plan survey.
 - Include any trees or groups not included on the plan.
 - To provide a report that includes a tree survey and a Tree Constraints Plan (TCP), with the Arboricultural Impact Assessment (AIA) that will indicate any impacts of the proposed development on the adjacent trees and any effects of retaining the trees on the development.
 - To provide information that shows which trees are a constraint to development.
 - To recommend any trees that require pre-construction management or removal.

1.2 Documents provided

- 1.2.1 A plan drawing Job No 24092520-01 Drg Scale 1:500

1.3 Scope of the survey

- 1.3.1 The survey relates to trees that are over 75mm diameter at 1.5m height. Groups and hedges may include trees with a smaller diameter.
- 1.3.2 The scope included trees on the Plan drawing that are likely to be affected by the car park extension.
- 1.3.3 The data from the tree survey is provided as an independent survey.

1.4 Survey method

- 1.4.1 The survey method is based around a 'Visual Tree Assessment system' (VTA) that is ratified by the Arboricultural Association and is based on the VTA by *Matteck, C Breloer, H (1994), 'Visual Assessment of Trees'*.
- 1.4.2 No soil samples were taken. The tree inspection was carried out from the ground. The only tools used were a rubber hammer, a steel probe, a dbh tape, a measuring tape and the use of binoculars. Pictures were taken with a digital camera.
- 1.4.3 All the data recorded was in line with those required within BS5837:2012.
- 1.4.4 All the tree species were recorded, and the trees were categorised in conjunction with the Cascade chart within the BS5837:2012 document.

1.5 Limitations

- 1.5.1 Trees are living organisms means their health and wellbeing can change over time and with climatic conditions. The assessment of risk because of unpredictable events recognises that the tree that is surveyed can only be judged upon factors evident at that time of inspection by a suitably qualified Arboricultural inspector. All trees that are within the remit of a survey should be checked on a regular basis that is commensurate with the level of risk posed by the trees. A suitable time frame is between one year and 18 months.

2.0 Site visit and observations

2.1 Site visit

- 2.1.1 A site visit was undertaken on by Simon Ffoulkes a trained arboriculturist

2.2 Site observations

- 2.2.1 The land is accessed via the sports club entrance. There is an area of land that is on the North east boundary that has been used for staff and grounds work plant parking. This area has been extended to include an area that was part of the storage area that surrounds the original parking area.
- 2.2.2 The ground has been stripped of soil that has then been mounded up at the northern edge and the ground has been covered with Limestone scalping material.

3.0 Tree survey

3.1 Tree survey with the constraints

- 3.1.1 The tree survey indicates the grades allocated to the trees and groups on the survey drawing in the **Appendix 2** Tree Survey.
- 3.1.2 The survey identified 13 features that are 11 single trees and two groups that are applicable to the site. The **Table 1** below indicates which grade has been applied and to how many trees.

Table 1: Grading of features

BS 5837:2012 categories	Trees	Groups
'A' grade	0	0
'B' grade	7	2
'C' grade	4	0
'U' grade	0	0

3.1.3 The grading of the trees is based on the cascade chart from BS5837:2012 which will be found in the **Appendix 2**

3.1.4 The Root Protection Area (RPA) of each tree will be calculated by the tables within BS5837:2012 which are in the **Table 2** below. They are based on the principle of a circle with its centre on the base of each tree.

Table 2 Tree RPA calculation

Number of stems	Calculation
Single stem tree	$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter mm @ 1.5m x 12})^2}{1000} \times 3.142$
Tree with more than one stem arising below 1.5m above ground level	$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 + \dots + (\text{stem diameter 5})^2}{1000} \times 3.142$
Trees with more than five stems arising below 1.5m above ground level	$\text{RPA(m}^2\text{)} = \frac{(\text{mean stem diameter})^2 \times \text{number of stems @ 1.5m x 12}}{1000} \times 3.142$

3.1.5 The RPA is not always consistent with a circle and many factors will affect the rooting area of a tree. The deviation of the RPA is discussed in (section 4.6.3 of the BS5837:2012) document. Some factors that may affect the RPA are;

- The presence of roads.
- Topography.
- Drainage
- Soil type and structure
- Previous management

- 3.1.6 The Tree Constraints drawing is attached within **Appendix 4** and shows the extent of RPA along with Tree protection measures. The above ground constraints are indicated by the tree canopy spread and tree height. The below ground constraints are indicated by the Tree Constraints plan. Where a tree canopy extends beyond the RPA of the tree, the constraints plan will be extended to include the canopy.

4.0 Arboricultural Impact Assessment (AIA)

4.1 Legal constraints

- 4.1.1 The Local Planning Authority Mid Sussex Council has designated the woodland area that surrounds the North and east sides of car park as a semi- ancient woodland site.

4.2 Trees to be pruned or removed

- 4.2.1 There are no plans to remove any trees.
- 4.2.2 The trees T1, T11 and T13 require some form of tree management to ensure the safety of the public.

4.3 Tree encroachment

- 4.3.1 The re-development plans show the following trees will have their RPA encroached by the proposed development or will be encroached by the building process. The encroached trees are indicated in **Table 3** below.

Table 3

T = Tree G = Tree Group

Tree Ref number	Species	Grade
T1	English oak	C1
G2	English oak	B1
T3	Beech	C1
T4	Silver Birch	C1
G5	English oak	B2
T6	English oak	B1
T7	English oak	B1
T8	English oak	B1
T9	Silver Birch	B1
T10	Silver Birch	C1
T11	Silver Birch	B1
T12	English oak	B1
T13	English oak	B1

5.0 Tree protection measures

5.1 General tree protection

- 5.1.1 Tree protection for the retained trees should be installed before any of the construction process work is undertaken. This must include the movement of plant and machinery on site.
- 5.1.2 Tree protection shall include protection for the trees that require tree surgery management before any construction process begins. This is to ensure that the ground is not compacted, and no other trees are damaged by the tree surgery.
- 5.1.3 Normally the Tree Root Protection Area (RPA) is must be regarded as unavailable for use during the development process and access within the RPA is to be strictly limited.
- 5.1.4 Trees that are to be retained should be protected in a manner consistent with that indicated in the British Standard 5837:2012 to protect the RPA to the end of the project. The protection area is known as the Tree Protection Plan (TPP) and will need to be implemented within the AMS.
- 5.1.5 Materials must not be stored within the RPA during the construction process. No vehicles are permitted within the RPA. No washings should be allowed to soak into the RPA and any fires or cement mixing should be at least five metres from any tree.
- 5.1.6 Where root severance is required, roots up to 25mm in diameter can be severed and larger roots should follow the NJUG 10 guidelines, volume 4, with arboricultural supervision.
- 5.1.7 Tree protection includes protection to the canopy of the trees and where the canopy of a tree extends beyond the RPA this area should be included as part of the tree protection zone.

6.0 Discussion

6.1 Tree Constraints

- 6.1.1 From the Tree constraints plan **Appendix 4** it shows that all the trees on the TCP are affected by some degree because of the extension of the car parking area and the mounding of the earth on the boundary.
- 6.1.2 The mounded earth will have to be moved away from the site or regraded once the Limestone scalping material has been removed from the Root Protection Area (RPA) of the trees
- 6.1.3 The car parking wearing course and any membrane will have to be excavated back to beyond the RPA of the trees, so that the area can be used as a parking area whilst allowing the long term viability of the surrounding trees.
- 6.1.4 The most viable solution is to incorporate a 'No Dig' construction method of creating a suitable parking area to have the same foot print of the existing car park.
- 6.1.5 The method of how to construct the No Dig solution will be shown within the Arboricultural Method Statement (AMS)

7.0 Conclusions

7.1 Conclusions

- 7.1.1 The retrospective process of constructing a viable parking area that allows parking and retains the long term viability of the surrounding trees is achievable with a 'No Dig ' construction method and it is a familiar and acceptable solution to mixing trees within the built environment.
- 7.1.2 There will need to be an Arboricultural Method Statement (AMS) for the site that will set out the processes to achieve a joined up and harmonious approach to protecting the trees that are to be retained.
- 7.1.4 All tree work should be carried out in accordance with BS 3998:2010 – Recommendations for tree works.
- 7.1.5 All the trees must be assessed for nesting birds and protected species i.e bats. As disturbing protected species is an offence under the **Wildlife and Countryside Act 1981** and the **Countryside and Rights of Way Act 2000**. Advice on Bats and birds nesting can be obtained by contacting;
- Bats: Bat Conservation Trust (0845 1300 2280/ www.bats.org.uk)
 - Nesting Birds: Natural England (0845 600 3078/ www.naturalengland.ork.uk)
- 7.1.6 The Arboricultural Impact Assessment (AIA) indicates the impacts of the project and as there is a requirement for Tree Protection measures, an Arboricultural Method Statement (AMS) will provide the instruction on how the trees are to be protected.

8.0 References

British Standards Institution (2012) *BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations* London: BSI

Mattheck. C and Breloer.H (1994). *The Body Language of Trees*. London: H.M.S.O

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

Appendix 1 – Cascade chart

Table 1 – Cascade Chart For Tree Quality Assessment				
Trees for removal				
Category and definition	Criteria			Identification on plan
Category U Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees such as 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, for example Dutch Elm Disease, or very low quality trees suppressing adjacent trees of better quality Note – Habitat reinstatement may be appropriate. For example R category tree used as a bat roost: installation of bat box in nearby tree.			Dark Red
Trees to be considered for retention				
Category and definition	Category – Subcategories			Identification on plan
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution. A minimum of 40 years is suggested.	Trees that are particularly good examples of there species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal Arboricultural features for example the dominant and/or principal trees within an avenue	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance for example avenues or other aboricultural features assessed as groups	Trees, groups or woodlands or significant conservation, historical, commemorative or other value for example veteran trees or wood-pasture	Light Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Mid Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.			

Appendix 2 – Survey Key

Key For Survey

Species:	Common names
Height:	metres, estimated using a Sunnato metre.
Stem Diameter:	measured in millimetres at 1.5 metres. In the case of a multi-stemmed tree, each stem is measured at 1.5 meters. All stems are added up and divided by the number of stems, giving the average value. # = estimated for trees that are off site or cannot be measured.
Branch Spread:	In metres at the four compass points, measured with a tape in metres.
Canopy Height:	Measured in metres from the ground with the cardinal point given for the lowest part of the canopy
Age Class:	Y = Young SM = Semi Mature EM = Early Mature M = Mature OM = Over mature

The Age Class is relevant to each species

Structural Condition: S) Commented on.

Physiological Condition: P) Commented on

Physiological Conditions:

Good – No structural or physiological problems of any merit.

Fair – Some structural or physiological problems that may require some attentive work or some long-term problems.

Poor - Some major structural problems that are life limiting.

Dead

Minor Dead wood Dead wood of less than 25mm diameter and of a size that would not cause injury if it fell from the tree

Major Dead wood Dead wood that could inflict an injury if it fell from the tree.

Comments maybe be added

Preliminary Management:	For work pre-construction work.
Life Expectancy:	Expressed in ten year increments + = additional life expectancy < = less than the life expectancy Carried out as an estimation.
Category Rating:	As per the chart of BS 5837, supplied.

Appendix 3 – Tree survey

Tree Reference codes:

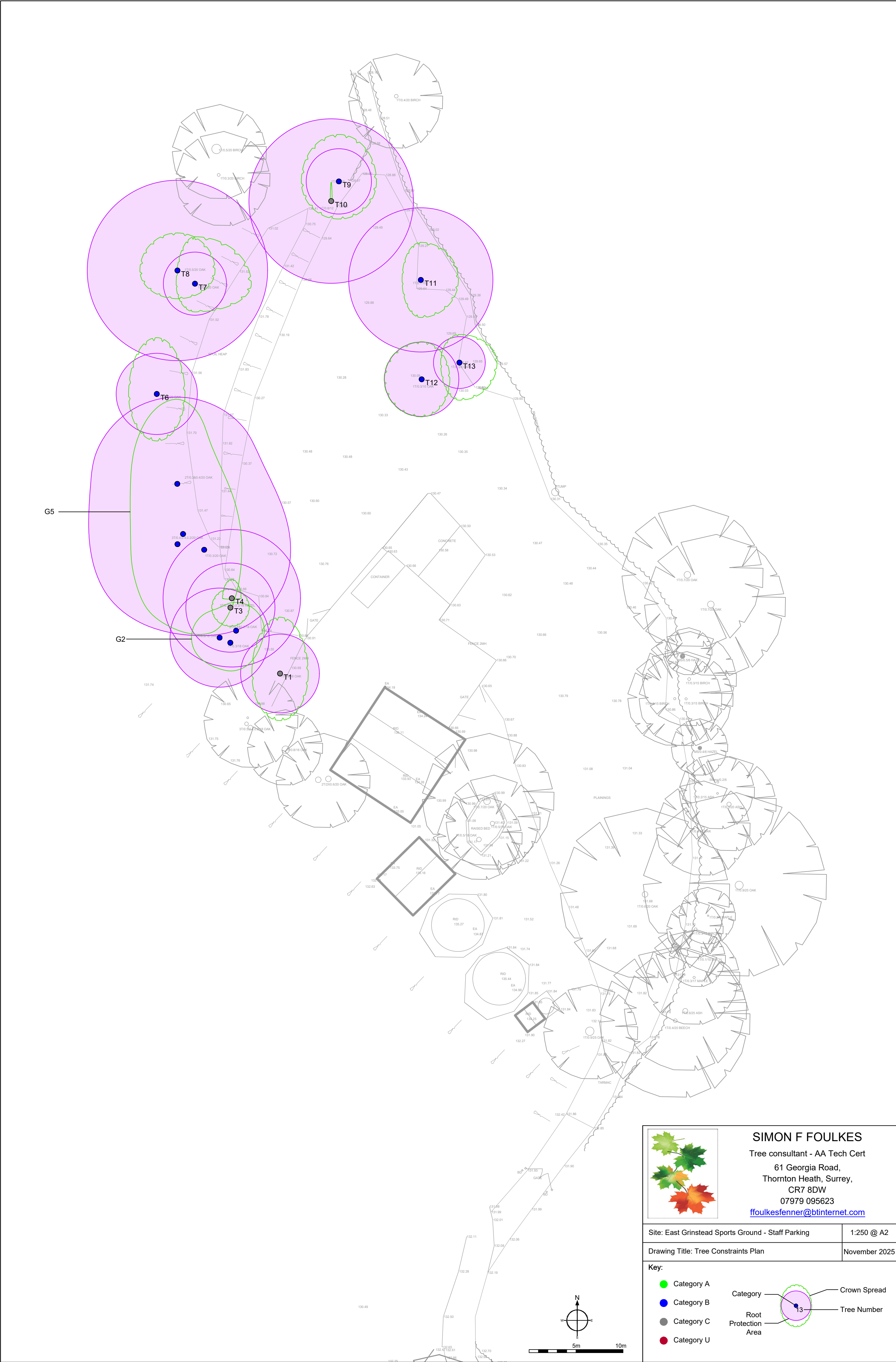
T = Tree G = Group

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
T1	English oak	18	580	N6 S5 E3 W3	N2	OM	S) Poor, Major crown die back P) Poor, Major dead wood	Remove the major dead wood	10+	C1
G2	English oak x 3	22	440	N3 S3 E3 W3	S3	M	S) Good, etiolated trees. P) Good, Asymmetric crowns	None	20+	B1
T3	Beech	18	290 270	N2 S2 E2 W2	W1	M	S) Fair, one stem has trunk decay, they are co joined	None	10+	C1
T4	Silver Birch	13	210	N2 S0 E1 W1	W1	EM	S) Fair. P) Fair, an asymmetric crown	None	10+	C1

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
G5	English oak x 4	22	400	N9 S9 E4 W5	E3	M	S) Good, multi-stemmed trees grown from previous stools. P) Good, asymmetric crowns	None	20+	B2
T6	English oak	22	450	N6 S5 E3 W3	S3	M	S) Good P) Good, minor decay on a trunk wound	None	20+	B1
T7	English oak	20	510	N5 S3 E6 W2	E3	M	S) Fair, a contorted trunk. P) Fair, Major dead wood and an asymmetric crown	None	20+	B1
T8	English oak	22	500	N4 S3 E4 W4	S7	M	S) Fair, Etiolated P) Fair, some stem decay and major dead wood	None	20+	B1
T9	Silver Birch	17	620	N5 S4 E4 W4	W3	M	S) Good. P) Good	None	20+	B1
T10	Silver Birch	12	190	N2 S0 E0 W0	N10	EM	S) Poor. P) Poor, an asymmetric crown that is suppressed	None	10+	C1

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
T11	Silver Birch	20	640	N4 S4 E4 W2	E2	M	S) Good. P) Good, some hanging branches	Remove the hanging branches	20+	B1
T12	English oak	12	330	N4 S4 E3 W4	E4	EM	S) Good. P) Good, some damaged branches	Remove the damaged Branches	20+	B1
T13	English oak	8	230	N3 S4 E4 W2	S3	SM	S) Fair, a suppressed crown. P) Good, an asymmetric crown	None	20+	B1

Appendix 4 – Tree constraints plan



SIMON F FOULKES
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Site: East Grinstead Sports Ground - Staff Parking	1:250 @ A2
Drawing Title: Tree Constraints Plan	November 2025

Key:

● Category A

● Category B

● Category C

● Category U

Category

Root Protection Area

Crown Spread

Tree Number