Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction

BS 5837:2012 TREE SURVEY
AND
ARBORICULTURAL METHOD STATEMENT
FOR
TOOTING TRIANGLE
366 CAVENDISH ROAD
LONDON

Prepared on behalf of:
TFC Leisure Ltd
Rocks Lane Multi Sports Centre
Rocks Lane
London
SW13 0DG

Ref: PB/5837-01/07.08

10th September 2019

Bramley House
Newnham Bridge
Tenbury Wells
Worcestershire
WR15 8NX
Tel: 0118 976 2902

CONTENTS

APPENDICES

Summary

We inspected all of the trees that could be affected by the proposed development at Tooting Triangle, Balham Boxing and Youth Club, 366 Cavendish Road, Balham, London, SW12 0PP. The tree details are contained in the tree survey schedule included at Appendix 1.

A total of 19 individual trees and 7 groups were assessed in accordance with the cascade chart for tree quality (Table 1: Section 4) of British Standard (BS) 5837:2012. They are categorised as follows.

- Four trees are in Category 'A' - "Trees of high quality".
- Five trees and one group are in Category 'B' - "Trees of moderate quality"
- Ten trees and six groups are in Category 'C' - "Trees of Low quality"

Mitigation may be required to demonstrate how the retained trees' root protection areas (RPAs) will be protected during any development, including access to the proposed development area. The RPAs are shown on the drawing included at Appendix 3.

1. Introduction

1.1 Instructions

1.1.1 Tree Surveys were instructed by Michael Quinnen of Indigo Blue Works Ltd, Architectural Design Service, 124 Alexandra Road, London SW19 7JY on behalf of TFC Leisure Ltd, Rocks Lane Multi Sports Centre, Rocks Lane, London SW13 0DG to visit the proposed development at Tooting Triangle and prepare a tree survey and arboricultural method statement in accordance with 'BS 5837:2012' a guide for 'Trees In Relation To Design, Demolition and Construction - Recommendations' (Section 4). The enclosed method statement is provided to discharge planning conditions for the proposed development at Tooting Triangle, Balham Boxing and Youth Club, 366 Cavendish Road Balham, London, SW12 0PP.

1.2 Validation

1.2.1 This report fulfils the recommended national listed criteria for tree survey information as set out in BS 5837:2012 and includes the following:

- A tree survey, undertaken by a qualified arboriculturist, and tree schedule, included at Appendix 1.
- A drawing at 1:200 scale with a north point, indicating the tree locations and colour coded, ref PB/5837-01/07.08 included at Appendix 2.
- The root protection area drawing, ref PB/RPA-01/07.08 included at Appendix 3.
- A shade constraints drawing, ref PB/SC-01/07.08 included at Appendix 4.
- A mitigation drawing including tree protection barrier, ref PB/MIT-01/07.08 Rev B included at Appendix 5.
- Default tree protection fencing from BS 5837:2012 and tree protection barrier sign included at Appendices 6 and 7.
- Default ground protection included at Appendix 8.

2. Scope of this report

2.1 The purpose of this report is to quantify the trees most likely to be impacted upon by the development proposal and to highlight how potential damage to them may be avoided.

2.2 The tree survey provides the basic data on the trees implicated in a forthcoming planning application. It does not set out to put arguments for or against the development. It does set out how to decide upon the retention of the trees, means of protecting the retained trees during development and on means of incorporating the trees into the developed landscape, along with appropriate management and protective measures.

2.3 The primary purpose of this report is for the client and council to review the information provided and use it for the purpose of considering a planning application or engaging in further discussions towards the same end. The information is provided on the basis that it will be available to people other than arboriculturists i.e. those without specialist knowledge of the subject.

3. Site visit and the collection of data

3.1 Site visit

3.1.1 The trees were surveyed by Paul Billin BSc MICFor on Wednesday 7th August 2019. The trees were inspected from ground level and without any form of detailed investigations; binoculars were used to aid the inspection process. The measurements we undertook on site were made with the aid of a rounded down diameter tape and TruPulse™ laser hypsometer. The trees were not tagged as they are easily identified on site and with reference to the attached tree location plan. The weather at the time of the inspections was dry and bright.

3.2 The trees

3.2.1 Nineteen individual trees and seven groups were recorded with stem diameters of 75 millimetres and above. The tree details have been entered into a tree schedule included at Appendix 1.

3.2.2 For ease of identification the trees are shown on the tree location drawing ref PB/5837-01/07.08 and have been allocated numbers. These numbers are cross-referenced within the BS 5837:2012 survey schedule.

3.2.3 In making the assessment, consideration has been given to:

- The health, vigour and condition of the trees.
- Any structural defects and safe life expectancy.
- The size and form of the trees.
- The rare, unusual or component part of a formal feature.
- Groups or individual trees that provide definite screening or softening effect.
- Trees forming distinct landscape features.

4. Constraints

4.1 Ecological constraints

4.1.1 The Conservation of Habitats and Species Regulations 2017 (as amended), and The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, provides statutory protection to birds, bats, and other tree dwelling species. They could impose significant constraints on the use and timing of any tree matters considered in this report.

4.2 Root protection areas (RPAs)

4.2.1 Using BS 5837:2012 the RPAs have been calculated for the trees by reference to section 4.6.1 (a) and/or (b). The RPA is frequently described as a circle with a radius of prescribed distance within which no unspecified activity should occur and a high level of care is needed during any activities that are authorised within them, if they are to be successfully retained.

4.2.2 Specified intrusions into the RPAs can take place only where the ground is adequately protected in accordance with the requirements of section 6 (6.2.3.3) of the BS or as may be agreed with the Local Planning Authority (LPA). The RPAs have been plotted as dodecagons or polygons taking account of the site constraints on drawing PB/RPA-01/07.08.

4.2.3 The shape and position of the RPA may only be modified by an arboriculturist to meet the pre-existing site conditions or other factors that indicate that rooting has occurred asymmetrically. In all cases, we have considered the adjacent constraints including such things as the existing site access, neighbouring garages, walls and site topography.

4.3 Shade constraints

4.3.1 Large trees that cast dense shade may result in pressure to prune or remove them. Whilst either shade or sunlight might be desirable depending on the potential use; the design should avoid unreasonable obstruction of light. The shade constraints posed by the trees are plotted onto drawing ref PB/SC-01/07.08.

5. Tree protective measures

5.1 In terms of tree protection barriers the accompanying drawing reference PB/MIT-01/07.08 Rev B shows the RPA locations and specific tree protection required prior to commencement and during the construction activities.

5.2 The tree protection barrier is designed to provide construction exclusion zones around the RPA of all trees to be retained.

5.3 The tree protection barrier should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. The default specification for protective barriers is that specified in BS 5837:2012 Figure 2, section 6. A copy of Figure 2 is reproduced at Appendix 6. All weather signs must be attached by cable ties to each Heras panel as set out in Appendix 7. The recommended position of the tree protection barrier is shown on drawing PB/MIT-01/07.08.

6. Tree survey key

No: Tree number on survey drawing

Species: Common/English and or Latin name

Height: Height in metres above ground level

Number of stems: Single stem, or number of stems if more than one

Canopy spread: In metres taken at the four cardinal points (N.E.S.W.)

Diameter: In millimetres measured in accordance with BS 5837 2012

Height & direction of 1st branch: In metres and by cardinal compass points. This can be found on the detailed tree assessment

Age class:
Young
Semi-mature
Early-mature
Mature
Over-mature

Root protection area: In square metres and the nominal radius of a circle required to achieve this in metres

Health - Physiological Condition (Phy Con):
Good
Fair
Poor
Decline
Dead

Structural Condition: Crown, Stem, Basal Area:
Good
Fair
Poor
Ivy

Survey Comment:
i.e. Further investigation, aerial inspection, decay detection, wildlife study

Estimated Remaining Contribution (ERC) in years:
i.e. less than 10, 10 to 20, 20 to 40, 40+

Category Grading:			
	Code U	Trees unsuitable for retention	RED
	Code A	High quality category	GREEN
	Code B	Moderate category	BLUE
	Code C	Low category	GREY

ARBORICULTURAL METHOD STATEMENT (AMS)

7. General

7.1 The key protection issues associated with this scheme in relation to existing trees, in the short, medium and long term, are the need for:

- Specification, supervision and auditing of tree works.
- The protection of trees to be retained from physical damage to their above and below ground structures.
- The protection of tree habitat.
- The protection of the soil structure and prevention of damage to tree root systems by chemicals and other noxious substances/materials.
- Monitoring, supervisions and liaison.

7.2 Protected Tree Status
On the 8th August 2019 a search of the Wandsworth Council's Online Map showed that the application area is not covered by any Tree Preservation Orders, nor is it within a Conservation Area.

8. Introduction

8.1 Terms of reference:
The BS 5837:2012 tree survey reference data was to be reviewed in order to integrate the proposed development options and safeguard the long-term preservation of the retained trees. This AMS provides guidance on the typical range of processes that are involved during development and seeks to ensure that appropriate methods of implementation are carried out. It further aims to provide a holistic view of the development process and seeks to address any potential issues and conflicts that may arise and provide solutions to these, resolving them in line with current arboricultural and industry best practice guidance.

8.2 The AMS sets out the management and protection details in support of the planning proposal and they must be implemented to secure successful tree retention. This is based upon the assumption that the minimum general standards for development are those set out in BS 5837:2012 and, in the absence of industry specific guidance on the installation of underground services, all new services required for the project must conform to the minimum standards required as set out in the National Joint Utilities Group (NJUG) 2007 Volume 4, Issue 1: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.*

8.3 Indigo Blue Works Ltd has developed a design shown on Proposed Site Plan Drawing-5189804 revised 13/08/2019. This drawing has been used as the base for drawing ref PB/MIT-01/07.08, included at Appendix 5. We have used our extensive experience to interpret these references in the context of evolving good practice and dealing with site specific issues relating to the proposed development at Tooting Triangle.

8.4 The RPA drawing PB/RPA-01/07.08 is illustrative and can only be used for dealing with the tree issues and all scaled measurements must be checked against the original site drawings. The precise location of all protective measures must be confirmed at a pre-commencement meeting before any construction activity starts.

8.5 Precautions when working in the RPA:

The following prohibitions apply within any tree RPA:

- No linear mechanical excavation whatsoever without prior written agreement from the LPA and Arboricultural Consultant (AC).
- No excavation by any other means without arboricultural site monitoring
- No hand digging without a written method statement from the main contractor having first been approved in writing by the AC.
- No altering of levels unless agreed in writing with the LPA and AC, except for the removal of grass sward using hand tools in accordance with BS 5837:2012 (section 7.4.2.1).
- No construction of a sealed hard surface.
- No storage of plant or materials.
- No mixing of cement/concrete.
- No storage or handling of any chemical including cement washings, unless site specific mitigation is approved by the AC and LPA.
- No vehicular access without prior written agreement from the LPA.
- No fire lighting within 20 metres of any retained tree.

8.6 In addition to the measures in 8.5, further precautions are necessary adjacent to the RPA of a number of trees as detailed in section 10 below.

8.7 Furthermore a 10 metre separation distance, or the RPA radius if it is greater, shall normally be observed between any tree during the cement mixing phases including storage and other substances injurious to tree health, this should include such things as fuels, oil, bitumen, cement (including cement washings), builders' sand, concrete mixing and other chemicals.

8.8 Avoiding damage to stems and branches:

Care shall be taken when planning site operations in proximity to trees to ensure that contact with the retained trees and overhanging branches is avoided; this includes when manoeuvring materials with cranes, rigs or booms. Such contact can result in serious injury to the tree and might make the safe retention impossible. Consequently, any tree protection in proximity to the trees shall be constructed under the supervision of the AC, to ensure that adequate clearance from the trees is at all times maintained.

8.9 Access pruning:

Access pruning is anticipated for a number of trees and this is dealt with at section 10.2. Pruning must not be undertaken until agreed by the LPA and tree owner. Any changes that require pruning may only be conducted following consent and must be undertaken in accordance with BS 3998:2010 and current arboricultural practices. At no time must trees be pruned by the construction contractors. All tree pruning must be undertaken by suitably qualified and insured arboricultural contractors under the guidance of the AC.

9. Tree protection general

9.1 Default fencing (BS 5837:2012)

The proposed scheme involves demolition and construction activities in close proximity to retained trees. It is considered that the minimum default type fencing must be that shown at Appendix 6, the location for this type of fencing is shown as a line on the mitigation drawing ref: PB/MIT-01/07.08. All weather signs must be attached by cable ties to each Heras panel as set out in Appendix 7. If construction work is adjacent to or within an RPA the default tree protection fencing may be inappropriate or unsuitable and therefore any alternative specification to the default above must only be used following a written contingency plan submitted to and approved by the AC and LPA. It should identify the reasons why the default cannot be used, the location and duration required for the substitute fence and it must be erected under the supervision of the AC. The AC must be given reasonable time to provide advice.

Specific tree protection measures have been considered at conflict points and mitigating measures are set out within this document.

9.2 Ground protection measures:

Ground protection is required to protect at least a functional minimum mass of undisturbed ground during the construction process and is required to limit compaction or contamination of the RPA. The specific ground protection measures must be installed and maintained during all the construction phases, this should include a scheme of arboricultural site monitoring with the AC. The proposed works on this site have been assessed and on the basis of the drawings supplied site specific measures are set out in section 10.

10. Site specific precautions and mitigation

10.1 Tree loss:
We anticipate the direct loss of four trees as a result of the development they are:

- Tree (T)3, T4, T5 and T6: they are Category ‘C’ - “Trees of low quality”

Mitigation:

- The loss of four small, semi-mature trees and the group of three hawthorn will have a minor loss of visual amenity locally and will have no significant negative impact on the wider landscape character.
- It is proposed to plant two new blocks of native trees and shrubs to the east and the south east of the sports pitches to both mitigate this loss but also to enhance the landscaping around the sports pitches. This is dealt with in a separate landscape plan.

10.2 Hedge laying:
The stems within G2 (three mature hawthorn stems) and H7 (six mature hawthorn stems will be cut and laid according to standard practice as set out in guidance offered by the National Hedgelaying Society (https://hedgelaying.org.uk) and enriched with new hedge planting; dealt with in the separate landscape plan.

10.3 Access Pruning.
Tree pruning is required to raise the canopies of T8 to T11, T14, T19, T20, T22, T23, T24 and T26 and groups G12 and G13.

Proposed work:

- The canopies of T8, T9, T10 and T11 should be raised to a height of 3.5 metres above ground level (AGL) and pruned back to suitable secondary growth points to provide adequate canopy clearance for erection of the new fencing.
- The canopies of T14, T19, T20, T22, T23, T24 and T26 and groups (G)12, G13 should be raised to a height of 5.0 metres above ground level (AGL) and pruned back to suitable secondary growth points to provide adequate canopy clearance for erection of the new fencing.
- Pruning may only be conducted following consent and must be undertaken in accordance with section 8.9. At no time must the trees be pruned by the construction contractors.
- All tree pruning must be undertaken by suitably qualified and insured arboricultural contractors and overseen by the AC.

10.4 Site set up and access during sports pitch replacement, construction works and the fence erection will be across the existing hard surfaces, specifically via a shared path along the northern boundary with an available width of 1750 millimetres. The RPA incursion during site operations on retained trees T8 to T11, G15 and T16 to T26 will have little impact on the trees providing the mitigation set out below is followed:

Mitigation:

- The tree protection barrier (TPB) must be installed prior to any demolition or construction activity as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ for the duration of the scheme.
- A TPB must be erected around the stems of T19 to T21 to prevent abrasion damage and accidental wounding. The TPB must consist of exterior grade 13 millimetre plywood on a wooden framework of 100 millimetre x 50 millimetre batons secured to 75 millimetre square posts to a minimum height of 1.5 metres above ground level to form a box, which must remain in place for the duration of the works. In addition temporary ground protection must be afforded by the use of DuraDeck® ground protection mats or similar ground protection mat system.
- Where the barrier may need to be temporarily moved to allow works access additional temporary ground protection must be applied as per Appendix 8. The barrier must only be moved following agreement from the Local Planning Authority.
- Temporary ground protection is required for access over the RPAs of T16 to T26. This must be suitable for the maximum weight of vehicles and construction machinery required for the site. Examples to be used are:
  - As detailed in Appendix 8 for the RPAs of T8 to T10
  - The use of DuraDeck® ground protection mats or similar load bearing mats to be laid on top of the existing surface to minimise compaction from additional vehicular access over the RPAs of T19 to T26.
- This is detailed on PB/MIT-01/07.08 Rev B as “Ground protection; temporary” showing the minimum area.

10.4 Continued..

- These measures must be installed prior to any site or construction activity as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ for the duration of the scheme.

10.5 Removal of existing sports field surface of crushed red brick adjacent to the RPAs of retained trees T16-21, T22 and T26. The potential RPA incursion on retained trees during the removal of the existing sports field surface will have little impact on the trees providing the mitigation set out below is followed.

Mitigation:

- In order to ensure the RPA of the retained tree remains undamaged, and to prevent contamination and compaction during the works, the RPA must be protected. The tree protection fence and ground protection must be installed as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ until all works activity is completed.
- Where the barrier has to be temporarily moved to allow works access additional ground protection must be applied.
- Removal of materials must be carried out with the excavator positioned outside the RPA of the retained tree, using a toothless bucket, working in a direction away from the edge of the RPA.
- To avoid root desiccation, any roots over 25mm and clumps of fibrous roots below 25mm encountered during this removal process must be immediately covered with topsoil that has been taken from outside RPAs of retained trees or new topsoil imported for the same purpose.
- Existing surface vegetation requiring removal within the RPA must be removed by hand tools in accordance with BS 5837:2012, section 7.4.2.1. Under no circumstances must mini diggers or similar machinery be used to remove the surface vegetation in the RPA of retained trees. Sharp sand shall be loosely tipped and lightly tamped to level uneven ground or fill hollows before the temporary ground protection is installed.
- It is essential not to dig into the sub base when removing existing hard surfaces over RPAs.
- Spoil must not be stored within the RPA of retained trees.

10.6 Re-surfacing of the sports pitch using third generation (3G) artificial turf pitch construction. The potential RPA incursion on retained trees T16-21, T22 and T26 during re-surfacing will have little impact on the trees providing the mitigation set out below is followed.

Mitigation:

- Within the RPA of the retained trees there must be no disturbance of the existing base layer or additional compaction during the construction works.
- A new chevron, drainage system will be laid across the area. Where drainage pipes cross the RPAs of retained trees, these will be hand dug as per section 10.8.
- The new all-weather sports-pitch surface must then be laid using a “no dig” cellular confinement system as a sub-base over retained tree RPAs, designed to support the anticipated traffic, such as Geoweb® or Cellweb®,

10.6 Continued…

or similar product, over a permeable, non-woven geotextile membrane, infilled with granular, no fines, PH neutral 20-40 millimetre washed, angular stone infill. This is detailed on PB/MIT-07.08 as "Ground protection; Sportsfield" showing the minimum area.

- The stone should be spread and lightly pushed into the cellular matting to avoid soil compaction.
- The new sportsfield surface, to comply with FIFA 1 star or IATS equivalent approval and BSEN 15330-1 (2007), will be 250mm crushed stone; 40mm porous tarmac; 25mm surface covering; 15mm shockpad and long pile 3G turf (60mm), total height 390 mm.
- Edging to the sports surface should be kerb stones built up on the outer edge.

10.7 Excavation and foundation for support posts of proposed new 4500 millimetre tall security fence. The excavation for the posts along the northern and eastern side of the new fencing may be within the RPAs of T16 to T21, T22 and T26.

Mitigation:

- The tree protection barriers must be installed prior to any site activity as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ for the duration of the scheme.
- To ensure the RPA of the retained tree remains undamaged, and to prevent contamination and compaction during access and construction works the RPA must be protected with temporary ground protection as the works progress, as set out in Appendix 8.
- Any surface vegetation requiring removal within the RPAs must be agreed with the AC prior to removal furthermore, it must only be removed with hand tools in accordance with BS 5837:2012; section 7.4.2.1. Under no circumstances must mini excavators or similar machinery be used to remove the surface vegetation in RPAs, this includes landscaping operations.
- All excavations within RPA must be undertaken by hand or a manually operated post-hole auger
- If roots less than 25 millimetres in diameter are encountered during works they must be cut cleanly with a suitable sharp tool (e.g. bypass secateurs or handsaw) and covered with damp hessian to prevent them from drying out.
- Roots occurring in clumps or of 25 millimetres diameter and over should be severed only following consultation with the AC as such roots might be essential to the tree's health and stability. Ideally, they must be retained undamaged and, when encountered, alternate post-hole locations used to avoid disturbing the root(s).
- All excavated holes must be lined with impermeable 1000 gauge polythene sheeting before filling with concrete to avoid root damage caused by leachate.

10.8 Details of excavation and installation of services to the outside floodlighting were not available at the time this method statement was prepared but are believed to follow the existing lines. However, the following generic mitigation applies:

10.8 Continued…

Mitigation:

- The proposed services must be submitted to and approved in writing by the AC prior to any works starting on site. The tree protection barrier must be installed prior to any construction activity and in the location as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ until all construction activity is completed. All excavations within the RPA of any retained trees affected by below ground works must be undertaken by hand or an approved trenchless technique.
- If roots less than 25 millimetres in diameter are encountered during excavation, they must be cut cleanly with a sharp hand saw and covered with damp hessian to prevent them from drying out. Roots greater than 25 millimetres in diameter must remain in place and the AC contacted for advice.
- In the absence of industry specific guidance on the installation of underground services, all new services required for the project must conform to the minimum standards required and will be those as set out in the National Joint Utilities Group (NJUG) 2007 Volume 4, Issue 1: Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

10.9 Spoil movements, storage of materials, skips, parking and welfare facilities. The following generic mitigation applies:

Mitigation:

- Spoil and building materials must not be stored within the RPA of retained trees.
- Skips, parking and welfare facilities must be sited beyond the RPAs of retained trees. There will be limited space for the storage of materials on the site therefore the main contractor must provide a contingency plan setting out a phased program of works and any storage requirements to ensure that the work phases can be completed without compromising the RPA's.
- The tree protection barrier must be installed prior to any construction activity and in the locations as shown on drawing PB/MIT-01/07.08 Rev B and remain in situ until all construction activity is completed.

11. Arboricultural supervision

11.1 Direct site supervision is considered unnecessary and would be disproportionate to the risk associated with the work. A suitably qualified Arboriculturist must be engaged to provide technical advice should it be required.

12. Contingency plans

12.1 A general contingency plan for this project must be prepared by the main contractor for controlling such things as chemical/fuel spillage, run off from cement washings, sewage or water leaks, site collisions and emergency access into or adjacent to retained tree RPAs.

13. Queries

13.1 Any queries regarding this BS 5837 Tree Report and AMS should be addressed, in the first instance, to Tree Surveys:

Tree Surveys
Bramley House
Newnham Bridge
Tenbury Wells
Worcestershire
WR15 8NX

Telephone: 0118 976 2902
Email: info@tree-surveys.com

Paul Billin, BSc, MICFor
Chartered Arboriculturist
Tree Surveys

APPENDIX 1

BS5837:2012 Tree Survey

Client: TFC Leisure Ltd
Project: Tooting Triangle 366 Cavendish Road
Survey Date: 07/08/2019
Surveyor: Paul Billin

Tree Surveys
Bramley House
Newnham Bridge
Tenbury Wells
Worcestershire
WR15 8NX
Phone: 0118 986 2902

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
1 Hedge											
Common Hornbeam *Carpinus betulus*	4.5	1	65	N 0.5 E 0.5 S 0.5 W 0.5	0 0 0 0	Y	A: 1.9 R: 0.77	Fair	C: Good S: Good B: Fair	No action :: Unspecified Hedge. Dbh and height varies average dimensions recorded	C.2 20 to 40 yrs
2 Group											
Common Hawthorn *Crataegus monogyna*	4	10	253 (Eq)	N 1 E 1 S 1 W 1	0 0 0 0	SM	A: 29 R: 3.03	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Three poor stems, dbh and height varies average dimensions recorded	C 20 to 40 yrs
3											
Sycamore *Acer pseudoplatanus*	12	2	202 (Eq)	N 2 E 2 S 2 W 3	2 2 2 2	SM	A: 18.6 R: 2.43	Fair	C: Fair S: Ivy B: Fair	Ivy :: Sever only Co dominant stems from ground level	C.2 20 to 40 yrs
4											
Sycamore *Acer pseudoplatanus*	12	1	180	N 1 E 1 S 2 W 1	2 2 2 2	SM	A: 14.7 R: 2.16	Fair	C: Poor S: Ivy B: Fair	No action :: Unspecified Fair form and structure	C.2 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)		Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
5												
Silver Birch *Betula pendula*	12	1	240	N E S W	2.5 2.5 2.5 2.5	3 3 3 3	SM	A: 26.1 R: 2.88	Fair	C: Fair S: Ivy B: Fair	No action :: Unspecified Fair form and structure	C.2 n/a
6												
Silver Birch *Betula pendula*	6	1	130	N E S W	1 1 1 1	3 3 3 3	SM	A: 7.6 R: 1.55	Poor	C: Poor S: Ivy B: Fair	No action :: Unspecified Fair form and structure	C.2 20 to 40 yrs
7 Hedge												
Common Hawthorn *Crataegus monogyna*	6	1	150	N E S W	3 2 2 2	1 1 1 1	M	A: 10.2 R: 1.8	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Remnant field hedge, 6 stems, wide spacing.	B.2 10 to 20 yrs
8											Estimated Measurements	
Unknown - -	12	1	389	N E S W	4 3 3 3	4 4 3 4	SM	A: 68.5 R: 4.66	Decline	C: Fair S: Fair B: Fair	No action :: Unspecified Co dominant stems union 2.1m AGL. Previously reduced at 4-6m AGL	B.1 20 to 40 yrs
9											Estimated Measurements	
Willow *Salix Spp.*	9	1	269	N E S W	2 2 3 5	4 3 3 3	SM	A: 32.7 R: 3.22	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified No access. Co dominant stems union 2m AGL	C.1 20 to 40 yrs
10											Estimated Measurements	
Willow *Salix Spp.*	7	1	179	N E S W	2 1 2 4	3 2 2 2	SM	A: 14.5 R: 2.14	Fair	C: Fair S: B: Fair	No action :: Unspecified No access	C.1 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
11											Estimated Measurements
Willow *Salix Spp.*	9	5	481 (Eq)	N 3 E 4 S 4 W 5	3 3 2 2	SM	A: 104.7 R: 5.77	Fair	C: Fair S: Ivy B: Fair	No action :: Unspecified Co dominant stems	C.1 20 to 40 yrs
12 Group											
A Group - -	4	1	50	N 1 E 1 S 1 W 1	0 0 0 0	SM	A: 1.1 R: 0.59	Poor	C: Poor S: Ivy B:	Ivy :: Sever/remove ivy Group with privet, willow and ivy growing over fence	C.1 <10 yrs
13 Hedge											Estimated Measurements
Prunus *Prunus Spp.*	5	1	139	N 1 E 2 S 1 W 2	0 0 0 0	M	A: 8.7 R: 1.66		C: Fair S: B:	No access; inspection therefore incomplete	C.1 20 to 40 yrs
14 Group											
Willow *Salix Spp.*	7	1	90	N 1 E 3 S 1 W 3	0 0 0 0	Y	A: 3.7 R: 1.08	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Previously topped at 2-3m AGL. Dbh and height varies average dimensions recorded.	C.2 20 to 40 yrs
15 Group											
A Group - -	8	5	166 (Eq)	N 3 E 3 S 3 W 3	0 0 0 0	SM	A: 12.4 R: 1.98	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Group of hawthorn, blackthorn, hazel. Dbh and height varies average dimensions recorded	C.2 >40 yrs
16											
Honey Locust *Gleditsia triacanthos*	28	1	910	N 5 E 6 S 9 W 7	7 7 7 7	M	A: 374.7 R: 10.92	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Fair form and structure	A.1 >40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
17											
Aspen *Populus tremula*	20	1	530	N 5 2 E 7 2 S 6 2 W 5 2		M	A: 127.1 R: 6.36	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Slight lean to south east	B.1 20 to 40 yrs
18											
Oak *Quercus Spp.*	24	6	2498 (Eq)	N 7 4 E 12 4 S 10 4 W 9 4		OM	A: 707 R: 15	Decline	C: Fair S: Fair B: Poor	Further inspection :: On internal trunk decay. Fungal fruiting bodies around base; Ganoderma sp.	C.1 20 to 40 yrs
19											
Aspen *Populus tremula*	15	1	270	N 3 1 E 3 1 S 3 1 W 3 1		SM	A: 33 R: 3.24	Fair	C: Fair S: Fair B: Poor	No action :: Unspecified Single stem fair form and structure.	B.1 20 to 40 yrs
20											
Aspen *Populus tremula*	8	1	160	N 1 3 E 4 1 S 2 2 W 0.5 2		Y	A: 11.6 R: 1.92	Fair	C: Fair S: Fair B: Poor	No action :: Unspecified Historical pruning, to remove two co dominant stems at ground level.	C.1 10 to 20 yrs
21											
Aspen *Populus tremula*	18	2	532 (Eq)	N 5 6 E 6 1 S 8 1 W 2 6		M	A: 127.8 R: 6.37	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Asymmetric crown biased toward east	B.1 20 to 40 yrs
22											
Common Oak *Quercus robur*	12	2	464 (Eq)	N 6 1 E 5 1 S 5 1 W 6 1		SM	A: 97.4 R: 5.56	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Co dominant stems from ground level.	A.2 >40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
23											
Common Oak *Quercus robur*	12	3	408 (Eq)	N 5 E 3 S 5 W 7	2 2 2 2	SM	A: 75.4 R: 4.89	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Fair form and structure	A.2 >40 yrs
24											
Common Oak *Quercus robur*	10	1	180	N 1 E 1 S 3 W 6	4 4 3 2	SM	A: 14.7 R: 2.16	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Fair form and structure	C.1 10 to 20 yrs
25											
Common Oak *Quercus robur*	14	2	314 (Eq)	N 4 E 5 S 3 W 2	3 3 3 5	Y	A: 44.6 R: 3.76	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Fair form and structure	B.1 >40 yrs
26											
Common Oak *Quercus robur*	16	2	506 (Eq)	N 5 E 5 S 8 W 7	3 2 2 2	SM	A: 115.7 R: 6.06	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Fair form and structure	A.2 >40 yrs

Age Classifications: N Newly planted; EM Early Mature; Y Young; M Mature; SM Semi-mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Report selection criteria.

Projects.

Tooting Triangle 366 Cavendish Road

Date Range.

Any Date

Work types.

----> Further inspection :: On internal trunk decay.
----> Ivy :: Sever only
----> Ivy :: Sever/remove ivy
----> No action :: Unspecified
----> -No Selection made-

Latest Survey.

All surveys for the selected trees.
---> Last survey for each selected tree.

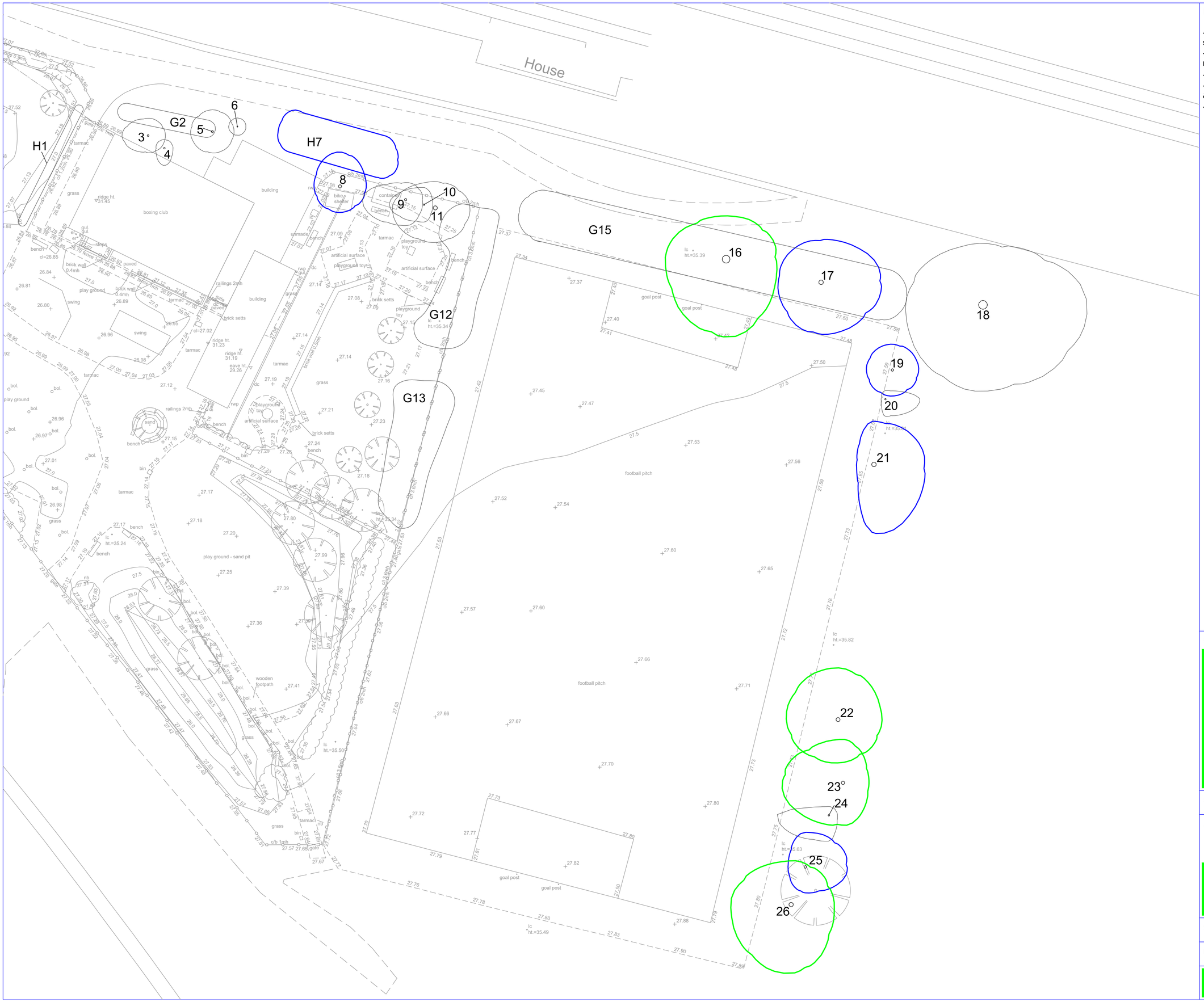
Work Completed.

---> Work Completed
---> Work Not Completed

Number of trees in selected Project(s)	**26**
Number of trees in Report selection	**26**

Age Classifications:	N	Newly planted	EM	Early Mature	**Condition:**	C	Crown	**Stems:**	Ø	Diameter
	Y	Young	M	Mature		S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area	**ERC:**		Estimated Remaining Contributio

APPENDIX 2



NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Topo based on SurvaTec Ltd drawing No. DW2019-476 & OS data, Licence No. 100022432
- Trees 3, 4, 5, 6, 11, 19 & 20 plotted by GPS.

N

INDICATIVE

Key:

- Tree Category A 1,2 or 3 - trees of high quality
- Tree Category B 1,2 or 3 - trees of moderate quality
- Tree Category C 1,2 or 3 - trees of low quality
- Tree Category U - trees that cannot realistically be retained
- 1 — Tree number - refer to report for information
- H1 — Hedge number - refer to report for information
- G2 — Group number - refer to report for information
- Existing site features

Tree Surveys
Bramley House,
Newnham Bridge,
Tenbury Wells,
Worcestershire, WR15 8NX
Tel: 0118 762902
e-mail: info@tree-surveys.com

Client: TFC Leisure Ltd

Job Title: TOOTING TRIANGLE, 366 CAVENDISH ROAD

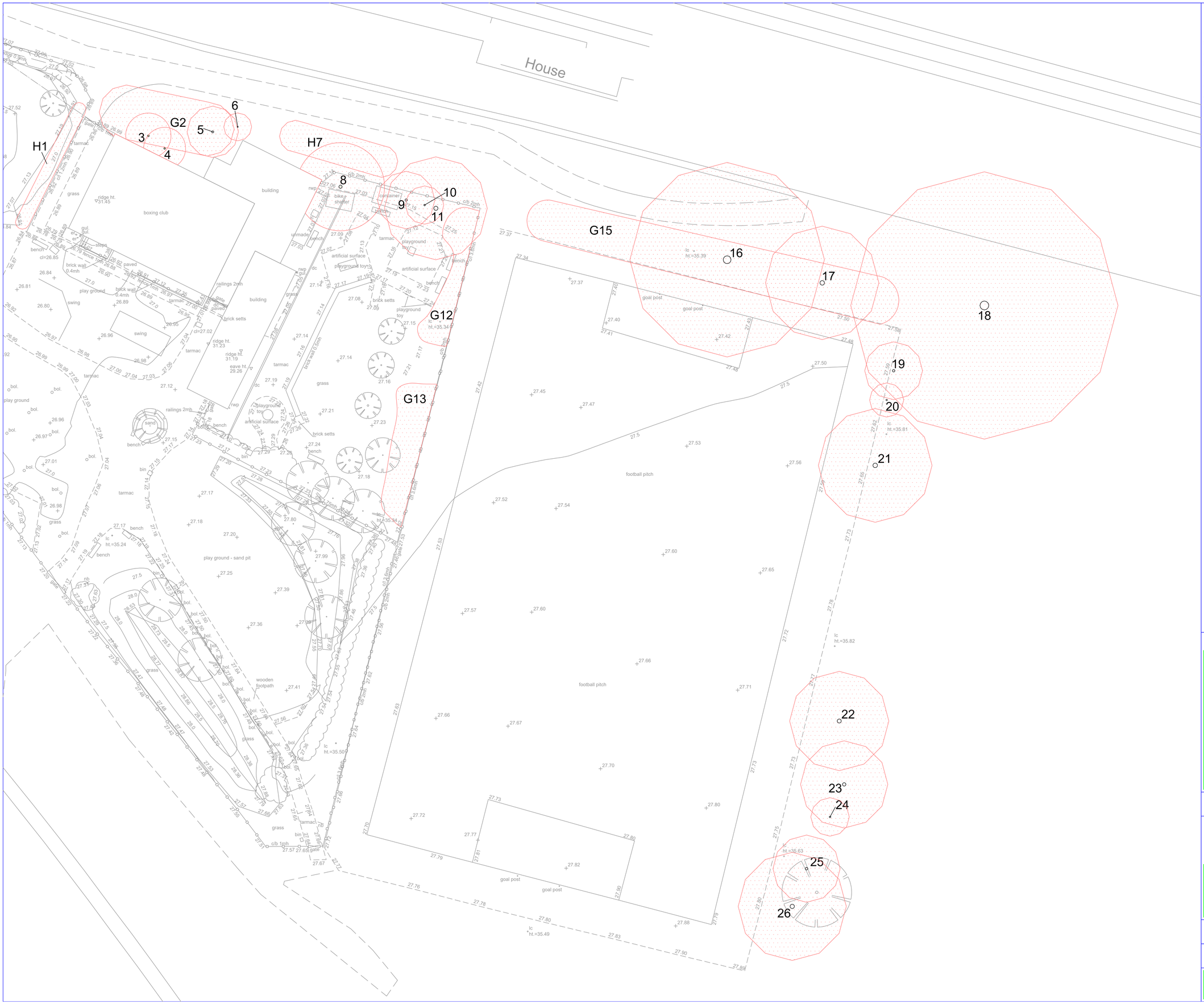
Drawing Title: TREE LOCATION PLAN

Scale: 1:200 @ A2

Date: August 2019 Drawn: MJE Checked: PB

Drg. No. PB/5837-01/07.08 Rev.

APPENDIX 3



NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Topo based on SurvaTec Ltd drawing No. DW2019-476 & OS data, Licence No. 100022432
- Trees 3, 4, 5, 6, 11, 19 & 20 plotted by GPS.

N

INDICATIVE

Key:

- Tree Category A 1,2 or 3 - trees of high quality
- Tree Category B 1,2 or 3 - trees of moderate quality
- Tree Category C 1,2 or 3 - trees of low quality
- Tree Category U - trees that cannot realistically be retained
- ○ 1 — Tree number - refer to report for information
- H1 — Hedge number - refer to report for information
- G2 — Group number - refer to report for information
- Existing site features
- Root protection area (RPA)

0 2.5m 5m 15m

Tree Surveys
Bramley House,
Newnham Bridge,
Tenbury Wells,
Worcestershire, WR15 8NX
Tel: 0118 762902
e-mail: info@tree-surveys.com

Client: TFC Leisure Ltd

Job Title: TOOTING TRIANGLE, 366 CAVENDISH ROAD

Drawing Title: ROOT PROTECTION AREA PLAN

Scale: 1:200 @ A2

Date: August 2019 Drawn: MJE Checked: PB

Drg. No. PB/RPA-01/07.08 Rev.

APPENDIX 4

NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Topo based on SurvaTec Ltd drawing No. DW2019-476 & OS data, Licence No. 100022432
- Trees 3, 4, 5, 6, 11, 19 & 20 plotted by GPS.

N

INDICATIVE

Key:

- Tree Category A 1,2 or 3 - trees of high quality
- Tree Category B 1,2 or 3 - trees of moderate quality
- Tree Category C 1,2 or 3 - trees of low quality
- Tree Category U - trees that cannot realistically be retained
- ○ 1 Tree number - refer to report for information
- H1 Hedge number - refer to report for information
- G2 Group number - refer to report for information
- Existing site features
- Area of shade

0 2.5m 5m 15m

Tree Surveys
Bramley House,
Newnham Bridge,
Tenbury Wells,
Worcestershire, WR15 8NX
Tel: 0118 762902
e-mail: info@tree-surveys.com

Client: TFC Leisure Ltd

Job Title: TOOTING TRIANGLE, 366 CAVENDISH ROAD

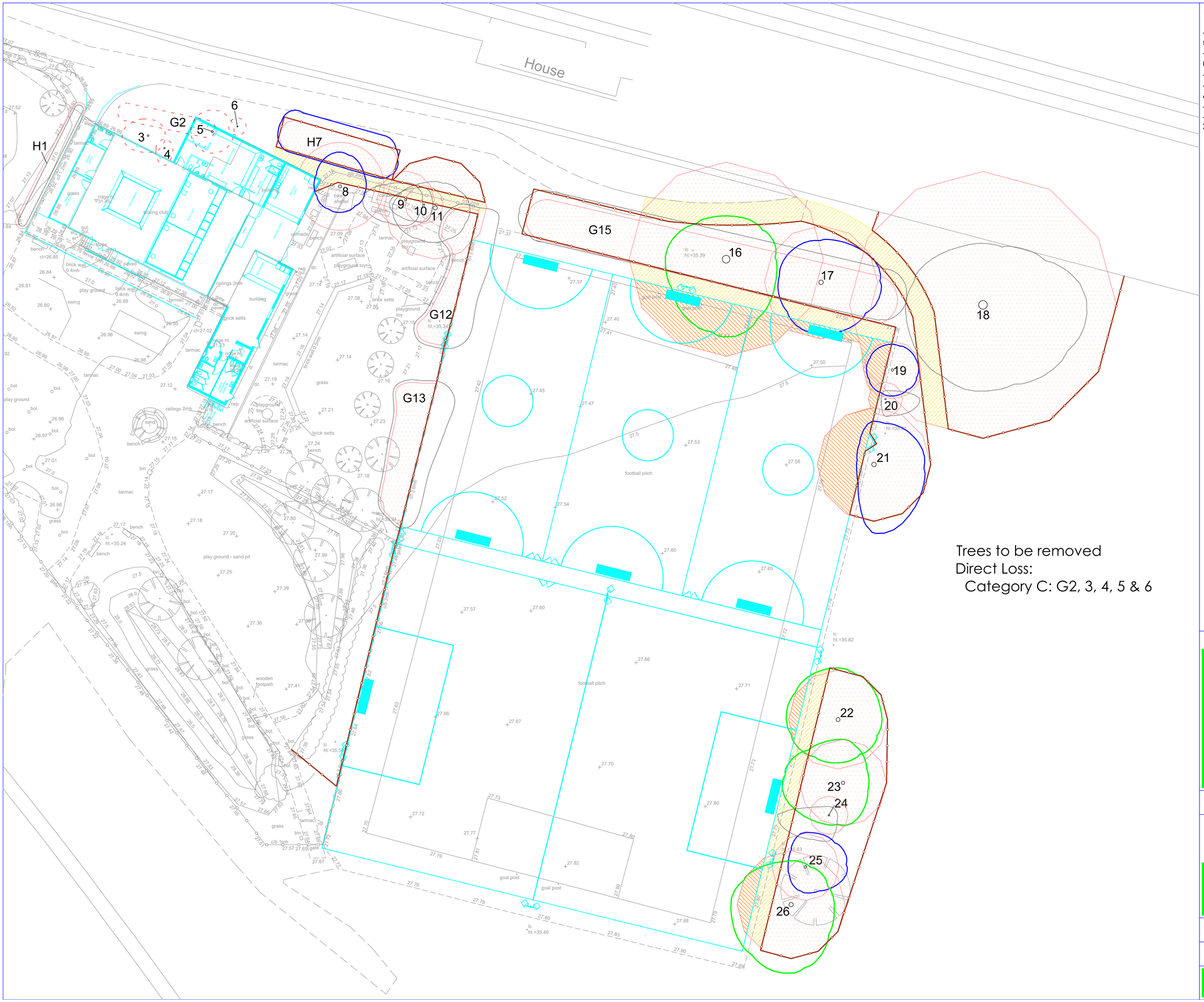
Drawing Title: SHADE CONSTRAINTS PLAN

Scale: 1:200 @ A2

Date: August 2019 Drawn: MJE Checked: PB

Drg. No. PB/SC-01/07.08 Rev.

APPENDIX 5



Trees to be removed
Direct Loss:
Category C: G2, 3, 4, 5 & 6

NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Topo based on SurvaTec Ltd drawing No. DW2019-476 & OS data, Licence No. 100022432
- Trees 3, 4, 5, 6, 11, 19 & 20 plotted by GPS.
- Proposal based on file provided by client:
27 TOPO SURVEY rev1.dwg

N

INDICATIVE

Key:

- Trees retained - refer to report for information
- Tree number - refer to report for information
- Existing site features
- Root protection area (RPA)
- Proposed area of works
- Tree protection barrier (TPB) - refer to report for information
- Temporary Ground protection (minimum area) - refer to AMS 10.4
- Ground protection - Sportsfield (min area) - refer to AMS 10.5
- Tree for removal

0 2.5m 5m 15m

Rev B. Proposal amended to clients comments 15/09/19
Rev A. Proposal amended to clients comments 06/09/19

Tree Surveys
Bramley House,
Newnham Bridge,
Tenbury Wells,
Worcestershire, WR15 8NX
Tel: 0118 762902
e-mail: info@tree-surveys.com

Client: TFC Leisure Ltd

Job Title: TOOTING TRIANGLE, 366 CAVENDISH ROAD

Drawing Title: MITIGATION PLAN

Scale: 1:200 @ A2

Date: August 2019 Drawn: MJE Checked: PB

Drg. No. PB/MIT-01/07.08 Rev B

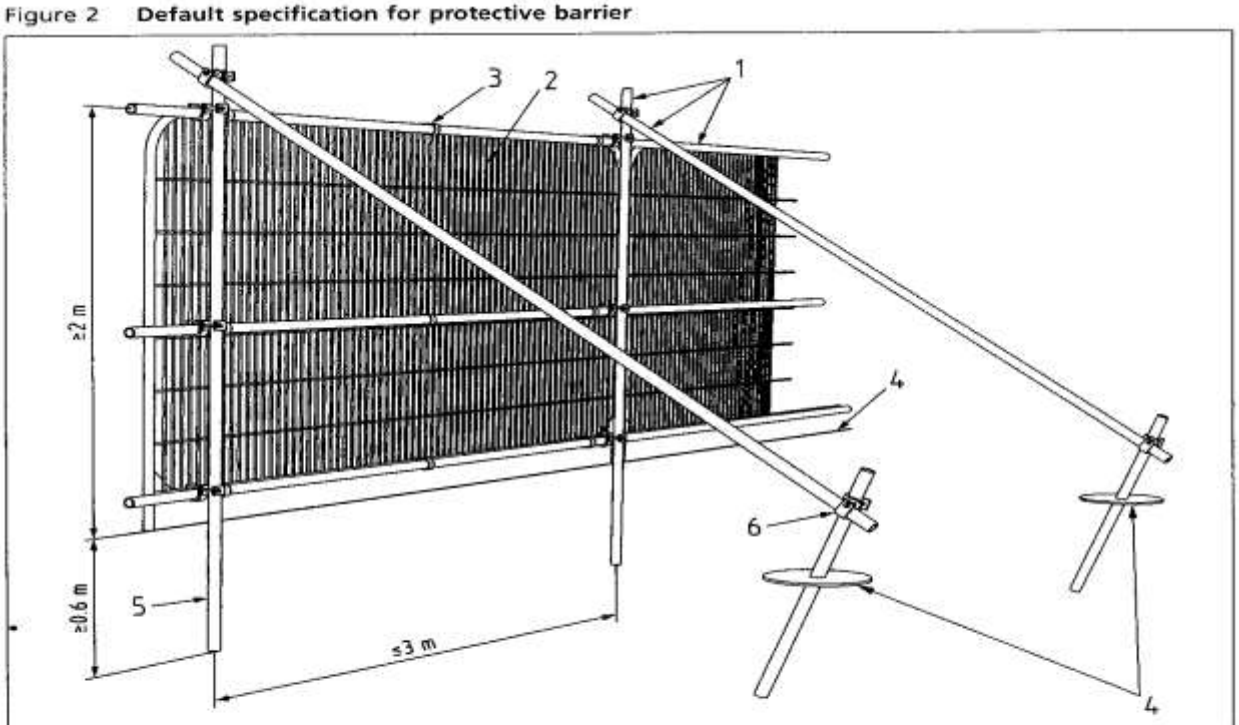
APPENDIX 6

BS 5837 FIGURE 2
TREE PROTECTION

Root Protection Areas (RPAs), enclosed by Default Temporary Protective Fencing, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. Be protected throughout the development process, as specified and detailed in BS 5837:2012 Section 6.2, Fig 2
2. Be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project.
3. Preclude any delivery of site accommodation and or materials and or plant machinery.
4. Preclude all construction related activity, with the sole exception of specified arboricultural works and any other works carried out under supervision that has been agreed by all parties, and:
5. Preclude the storage of all development related materials and substances including fuel, oils, additives, cement and or any other deleterious substances.
6. Any incursions into RPAs must be by prior arrangement, following consultation with the LPA.

Figure 2 **Default specification for protective barrier**



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

APPENDIX 7

TREE PROTECTION ZONE

KEEP OUT!

NO DIGGING OR TRENCHING
NO STORAGE OF PLANT OR MATERIALS
NO VEHICLE ACCESS
NO FIRE LIGHTING
NO CHEMICAL HANDLING
AVOID PLANT CONTACT WITH TREE CANOPY
REPORT ANY DAMAGE
TO TREES OR FENCING IMMEDIATELY

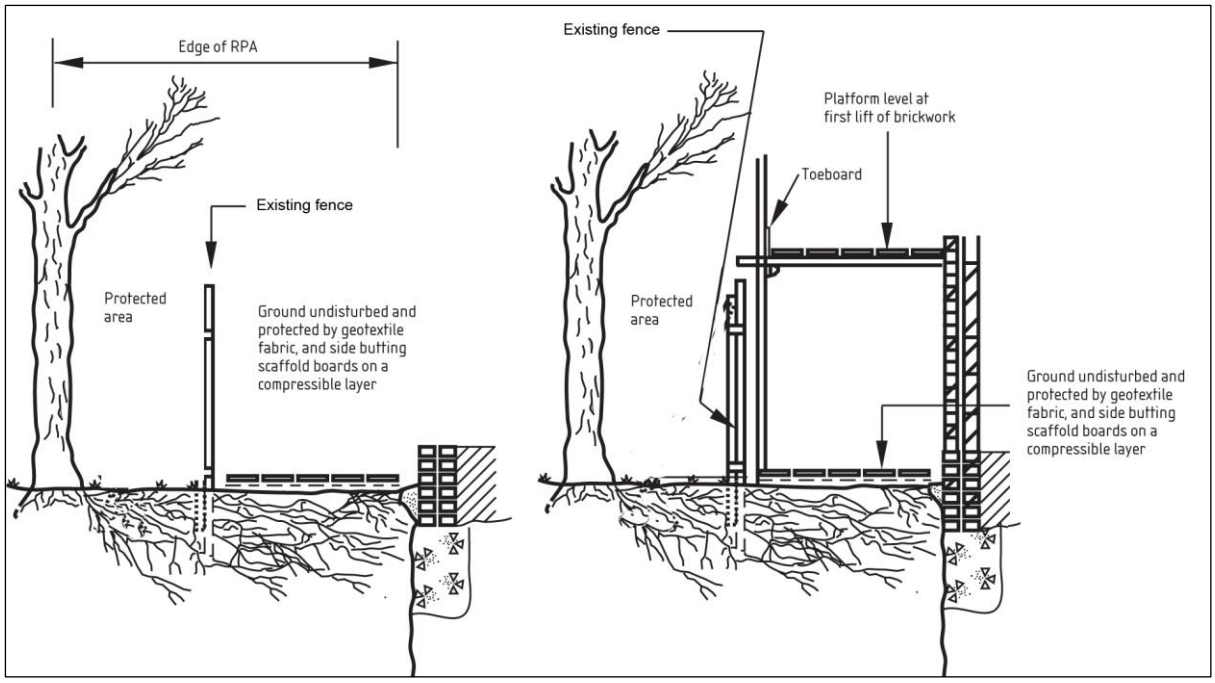
APPENDIX 8

GROUND PROTECTION

Temporary Ground Protection

Any temporary ground protection that may be required within an RPA shall conform to section 6.2.3. of BS 5837:2012, an example is shown in Figure 1 below.

Figure 1.



Option 1 – No vehicle access required.

1. Prior to installing ground protection the area beneath it must be lined with heavy duty polythene (1000/250 microns) to prevent contamination of the soil within the protected RPA.
2. Side butting scaffold boards shall be fitted to ensure adequate cover of the area to be protected.
3. Prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials the Arboricultural Consultant shall inspect the temporary ground protection.
4. The temporary ground protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Option 2 - Vehicle access required

In place of the above items 1, 2 and 3 the use of a temporary metal track, such as DuraDeck® ground protection mats, MegaDeck™ or Rig Mats, they should be laid on a 150mm deep layer of woodchip or sharp sand to minimise compaction and prevent damage to surface roots.