



BS 5837:2012 Arboricultural Survey

Scotland Hall Road Recreation Ground, Manchester

Presented to **Manchester City F.C. City in the Community Foundation**

Issued: November 2019

Delta-Simons Project No. 18-1673.04



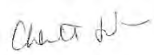
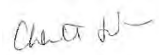
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Report Details

Client	Manchester City F.C. City in the Community Foundation
Report Title	BS 5837:2012 Arboricultural Survey
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Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1.	Final	18 th November 2019				
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Executive Summary

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by Manchester City F.C. City in the Community Foundation ('the Client'), to undertake a Tree Survey to BS 5837:2012 standard of an area of land situated at Scotland Hall Recreation Ground, Manchester, M40 2RF ('the Site'). The survey was undertaken on 9 th November 2019. The survey was undertaken to inform a planning application for the re-development of the existing park facilities, comprising a Multi-Use Games Area (MUGA) and footpath within the current park.
Current Site Status	The Site comprises an irregularly shaped area, in current use as part of a wider park, with limited areas of tarmac hardstanding utilised as a sports pitch, grassed play areas, footpaths, and well-maintained grass areas. Scattered trees are present throughout the wider park and along the boundaries, with a community apple orchard at the north-eastern extent of the park. The park, (and the Site) is located within a predominantly residential area. A railway runs adjacent to the southern boundary of the park at the base of an embankment.
Proposed Development	The proposed development of the Site comprises the construction of a new MUGA and associated footpath in the west of the existing park area.
Results	A total of 15 individual trees and 14 tree groups were identified and assessed as part of the Tree Survey. The results of the desk search undertaken on 14/11/2019, following an email request to Manchester City Council, indicate that no trees immediately adjacent to the Site are covered by Tree Preservation Orders (TPOs), or are within a Conservation Area.
Recommendations	<u>Recommendation 1 (Adequate Tree Protection)</u> Those trees identified within the proposed development plan for retention will need to be adequately protected during any approved development works. Measures to protect trees should follow the best practice principles set out in BS 5837: Trees in Relation to Design, Development and Construction (2012). Prior to any construction or development work proceeding, the Root Protection Area (RPAs) of individual trees to be retained should be marked out. Marking out should be completed by a competent person with arboricultural expertise. All trees retained on-Site and adjacent to the Site should be protected by barriers or ground protection around the calculated RPA, and as indicated on the Tree Constraints Plan (TCP) produced in association with this survey.
This Tree Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.	

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1.0 Introduction

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by Manchester City F.C. City in the Community Foundation (the 'Client') to undertake an Arboricultural Survey to BS 5837:2012 standard. The survey was of an area of land situated at Scotland Hall Recreation Ground, Manchester, M40 2RF (hereafter referred to as 'the Site'). The survey was undertaken on 9th November 2019. The Site location and the area surveyed are shown in Figure 1. The survey was undertaken in order to inform a planning application for the for the re-development of the existing park facilities into a Multi-Use Games Area (MUGA) and footpath within the current Site.

The aims of the Tree Survey were to:

- ▲ Identify the individual tree species present at the Site by means of visual inspection;
- ▲ To define the approximate age, condition and canopy spread of all individual mature trees identified and the value of these within the development;
- ▲ To identify any trees that present a risk to existing or proposed foundations or other structures that may be constructed on the Site and recommend actions to remove this risk; and
- ▲ Recommend tree management or mitigation measures where appropriate.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SJ 88227 99654, to the south-west of Failsworth in Manchester. The Site covers an area of approximately 0.41 hectares (ha) and comprises an irregularly shaped area with areas of tarmac hardstanding utilised as a sports pitch, grassed play areas, footpaths, and well-maintained grass areas. Scattered trees are present throughout the wider park and along the boundaries, with a community apple orchard at the north-eastern extent of the park. The park (and the Site) is located within a predominantly residential area. A railway runs adjacent to the southern boundary of the park at the base of an embankment. The Site did not support standing water at the time of the survey.

The Site layout and area surveyed is shown in Figure 2.

1.3 Proposed Development

It is understood from the drawing provided by Darnton B3 (drawing no. 13034-DB3-B01-XX-DR-A-90103A 20/09/19) that the proposed development comprises the construction of a new MUGA and associated footpath within the existing park (Drawing 1).

2.0 Legislation

2.1 Trees

Local planning authorities look upon trees as being highly beneficial to the locality. To ensure that any important specimens, or significant groups of trees are retained, they may place Tree Preservation Orders (TPOs) on them. In other situations, villages or whole districts may be classified as conservation areas. In these instances certain trees in the designated area will be protected. When trees are protected, legal procedures must be followed before any work is carried out.

When trees are protected by Preservation Orders, no work should be carried out on them without prior written consent from the Local Planning Authority (LPA). Once an application is made, the Authority personnel must inspect the trees, and make a decision within a statutory eight-week period as to whether work can go ahead. If no decision is made within the eight weeks period, the appellant can appeal to the Office of the Deputy Prime Minister for non-determination. If the Local Authority (LA) refuses the application the appellant still has the right to appeal.

If a tree protected by a Preservation Order is either killed or wilfully destroyed, the owners of the tree, and the contractor who did the work, can both be prosecuted. The fines for killing or wilfully destroying a tree can be high, i.e. the current maximum is £20,000 per tree, and there is an automatic requirement to re-plant. The current maximum for minor unlawful infringements, such as pruning, is £2,500.

Trees which are dead, dying, or dangerous are exempt from the legislation, although if such trees are removed, the onus on proving they fell into one of these categories lies with the tree owner. Whenever possible it is strongly recommended that the LA be given at least five days' notice before any work on such trees is carried out.

Trees in a conservation area that are already protected by a TPO are subject to the normal procedures and controls for any tree covered by such an Order.

Trees in a conservation area that are not protected by a TPO are protected by the provision in Section 211 of The Town and Country Planning Act (1990). These provisions require people to notify the LPA, using a 'section 211 notice', six weeks before carrying out certain works on such trees, unless an exception applies. The works may go ahead before the end of the six-week period if the LPA gives consent. This notice period gives the Authority an opportunity to consider whether to make an Order on the tree.

3.0 Methodology

The methodology set out below is a detailed summary of the suggested approach to tree assessment as described in British Standard 5837:2012. This Report has applied the methodology to all significant individual trees or groups of trees present at or near to the Site. Trees below 15 cm trunk diameter were generally excluded from the survey. All floral names follow the nomenclature of Stace (2010).

3.1 Trees

Trees have been broadly assessed based on guidance set out within the British Standard BS 5837:2012 Trees in Relation to Design, Development and Construction. This standard provides recommendations and guidance on the principles to be applied to achieve successful integration of development with trees, shrubs and hedgerows. Where development is to occur, the standard provides guidance on the approach needed to decide which trees are appropriate for retention, and the means for protecting these trees during the development (including demolition and construction works) and the means of incorporating trees into the developed landscape.

Trees on or adjacent to the Site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within Table 1. This gives an indication as to the tree's importance in relation to the Site, the local landscape and, also, the value and quality of the existing trees on-Site. This assists informal decisions concerning which trees should be removed or retained should development occur. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

Categories A, B and C cover trees that should be a material consideration in the development process, each with three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural (nature conservation) values. Category U trees may have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. In assigning trees to the A, B or C categories, the presence of any serious disease or tree-related hazard is taken into account. If the disease is considered fatal and/or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U with a recommendation for work or even removal, even if they are otherwise of considerable value.

Category (A): Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

- ▲ Trees which are particularly good examples of their species, especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- ▲ Trees, or groups of trees, 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 (e.g. avenues or other arboricultural features assessed as groups); and
- ▲ Trees or groups of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B): Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

- ▲ Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;
- ▲ Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the Site and have little visual impact beyond the Site; and

- ▲ Trees with clearly identifiable conservation or other cultural benefits.

Category (C): Trees that could be retained but are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm and may comprise:

- ▲ 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; and
- ▲ Trees with very limited conservation or other cultural benefits.

Category (U): Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. These trees will be in such a condition that any existing value would be lost within 10 years and which should in the current context be ignored or removed for reasons of sound arboricultural management. Trees within this category are:

- ▲ 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;
- ▲ Trees that are dead or are showing signs of significant, immediate or irreversible overall decline; and
- ▲ Trees infected with pathogens of significance to the health and or/safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.

Species have been recorded by common and scientific name. Height has been estimated in metres and stem diameter measured in centimetres unless impractical, taken at a height of 1.5 m from the base of the tree.

In the assessment particular consideration has been given to:

- ▲ The health, vigour and condition of each tree;
- ▲ The presence of any structural defects in each tree and its life expectancy;
- ▲ The size and form of each tree and its suitability within the context of the proposed scheme; and
- ▲ The location of each tree relative to existing Site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

- ▲ Y: Young trees age less than 1/3 life expectancy;
- ▲ SM: Middle age trees 1/3 – 2/3 life expectancy;
- ▲ M: Mature trees over 2/3 life expectancy; and
- ▲ OM: Over mature – declining or moribund trees of low vigour.

The overall condition of any individual tree, or group of trees, has been referred to using one of the definitions listed below. A more detailed description of condition has been noted in the Tree Schedule:

- ▲ G **Good:** A sound tree or trees needing little, if any, attention;
- ▲ F **Fair:** A tree or trees with minor but rectifiable defects or in the early stages of stress, from which it may recover;
- ▲ P **Poor:** A tree or trees with major structural and physiological defects or stressed such that it would be very expensive and inappropriate to retain; and
- ▲ D **Dead:** A tree or trees no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are becoming or have become dangerous.

Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:

Twigs and small branch material	-	Up to 5 cm in diameter.
Minor dead wood	-	5 cm to 10 cm in diameter.
Major dead wood	-	10 cm in diameter and above.

The survey was completed from ground level only. Aerial inspections were not undertaken. Evaluations of tree conditions given within this assessment apply to the date of survey and cannot be assumed to remain unchanged, and it may be necessary to review these within 24 months, in accordance with good arboricultural practice.

3.2 Potential for Protected Species

Potential bat roost locations are described within this Report using the methodology as that recommended by the Bat Conservation Trust (BCT), see Collins J. (ed) (2016) in references (Appendix A). Each tree of significant size assessed within this survey has also been assessed for the potential to provide roosts for bats and the table in Appendix C includes reference to this.

3.3 Tree Plans and Tree Schedules

The extent and positions of significant individual trees or groups of trees close to the Site are shown on the Arboricultural Survey Plan (Figure 2). The Root Protection Areas (RPA) of the key trees of value identified for, or recommended for retention have been marked within the Constraints Plan (Figure 3) using the RPAs provided in the Tree Schedule within Table 1.

A summary that includes the trees identified on or near to the Site is included in the Tree Assessment Report detailing information on each group of trees. This is also provided in Table 1. Within the summary table maximum RPAs (m²) for estimated tree diameters have been included where appropriate, as well as a calculated corresponding radius of the circle for that RPA. The RPAs are formulated as described below and assist when designing layouts in relation to trees.

3.4 Root Protection Area

Below ground constraints to development are represented by the root plate around a tree, which needs protecting in order for the tree to be incorporated into a proposed scheme without adverse harm to the tree or structural integrity of any proposed foundation structures.

This area is illustrated by the RPA and is calculated according to the formula set out in BS 5837:(2012). This area is equivalent to a circle with a radius 12 x the stem diameter for single stem trees or the basal diameter for trees with more than one stem arising less than 1.5 m above ground level.

$$\text{RPA (m}^2\text{)} = (\text{stem diameter (mm)} \times 12 / 1000)^2 \times 3.142$$

This figure should be capped to 707 m², that is, equivalent to a circle with a radius of 15 m, or a square with approximately 26 m sides

Taken from Table 2: Calculating the RPA, BS 5837 (2005).

4.0 Results

4.1 Data Search

The results of the desk search, undertaken via an email request to the Planning Department at Manchester City Council sent on 14th November 2019, indicate that no trees immediately adjacent to the Site are covered by Tree Preservation Orders (TPOs), or are within a Conservation Area.

4.2 Survey Details

The tree inspection took the form of a walkover inspection completed by Peter Morrell TechArbA on 9th November 2019. Each individual mature, semi-mature or young tree of significance that could be impacted upon by any proposed development was identified and visually inspected and classified. The trees identified during the survey at the Site have been individually noted and identified within this Report and are shown in the Tree Survey Plan within Figure 2, and within the Photograph Section of this Report (Appendix C).

4.3 Mature, Semi-Mature and Young Trees

A total of 14 individual trees and 15 tree groups have been identified and assessed as part of the tree survey. All trees and tree groups surveyed were either within the park boundary or immediately adjacent on private land but outside of the Site.

4.3.1 Species and their Arrangement in the Landscape

There are a limited range of tree species immediately adjacent to the Site, with no dominant species. Whitebeam *sorbus aria*, Portugal laurel *Prunus lustitanica*, ash *Fraxinus excelsior*, hybrid black poplar *Populus x canadensis*, crack willow *Salix fragilis*, pedunculate oak *Quercus robur*, sycamore *Acer pseudoplatanus*, silver maple *Acer saccharinum*, common hawthorn *Cataegus monogyna*, common alder *Alnus glutinosa*, large-leaved lime *Tillia platyphyllos*, apple *Malus domestica*, silver birch *Betulus pendula* and Leyland cypress *X Cupressocyparis leylandii* are present in multiple numbers. The following species are represented as single specimens: Midland hawthorn *Crataegus laevigata* and walnut *Juglans regia*.

The surveyed trees and tree groups are all off-Site, randomly dispersed across the park and adjacent to the northern, southern and western the boundaries of the park. Two trees (T13 and T14) support canopies that extend into the proposed development footprint.

4.3.2 Height and Significance in the Landscape

Trees TG3, T14, TG16, TG20, T21, T22 and TG23 standing at heights of up to 22 m are by their positions along the park's northern boundary and central area, highly visible when viewed from within the park and from south. They contribute significantly to the urban scene. For this reason, these trees are placed within Category A or B where their structure merits (see Table 1).

The remainder of trees are either located more centrally within the park to the south of the Site, or are of a less significant height and while they visually dominate the area within which they stand, there are restricted views of these trees within the wider landscape due to surrounding residential housing.

The trees may require protection measures to ensure no impact occurs as a result of any re-development.

4.3.3 Age and Condition

The greater proportion of the trees surveyed are mature and semi-mature with a several young oak trees present on the southern boundary and a community orchard of young apple trees. With the exception of T28 that has been pollarded, the remainder of the trees show limited signs of past management with the occasional hawthorn crown lifted. All trees appear to be in fair to good condition apart from T28 that was in a poor condition due to fungal growth and extensive bark damage.

4.3.4 Environmental Condition

Given the Site's use as a public park and the mature and semi-mature age of the majority of the trees around it, it is surmised that no damage to the root system of the trees has been sustained through any recent working practices. The majority of trees are not in an exposed position, having been protected from prevailing winds

by the surrounding buildings. However, the trees present along the top of embankment at the southern extent of the Site display signs of being in an exposed position.

Groundwater conditions are not assessed to be a significant factor in the present or future growth or health of trees since the generally flat park appears to be well drained and this situation will probably improve further following completion of any development in the locality.

4.3.5 Bat Roost Potential

No trees surveyed were found to support features suitable for roosting bats.

4.4 Tree Schedule

Table 1 – BS 5837:2012 Tree Schedule

Tree Number	Tree Species		Measurements			Crown (m)				Tree Condition										Management
	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Diameter (mm)	Average Height	N	E	S	W	Roots	Stem	Crown	Comments	Structural	Life Expectancy (yrs)	Category	RPA (m)	Works
TG1	Whitebeam Portugal laurel	<i>Sorbus aria</i> <i>Prunus lusitanica</i>	SM	6	S/ MS	Est 200	0	3	3	3	3	Unable to access	Single and multiple stems, vertical. Whitebeam bifurcated at 2 m	Dense rounded canopies read as one.		F	20 - 40	C	2.4	
TG2	Ash	<i>Fraxinus excelsior</i>	Y	10	SM	Av 175	2	4	4	4	4	No obvious damage	Multiple stems from base, vertical.	Canopies read as one.		F	>40	C	2.1	
TG3	Hybrid black poplar	<i>Populus x canadensis</i>	SM	18	S	Av 800	4	8	10	8	6	No obvious damage	Single stems, vertical.	Open canopy. Scattered deadwood present		F	>40	B	9.6	
TG4	Crack willow	<i>Salix fragilis</i>	SM	16	S	Est 550	4	8	8	8	8	Unable to access	Single and multiple stems, vertical.	Open canopies. Minor deadwood	Scattered group on embankment with canopies that extend into the park	F	>40	B	6.6	
T5	Ash	<i>Fraxinus excelsior</i>	Y	7	2	Est 2 x 200	2	2	2	2	2	No obvious damage	Bifurcated at 1 m. Vertical. Included bark present.	Open and balanced		F	>40	B	3.3	
TG6	Ash	<i>Fraxinus excelsior</i>	SM	12	S	Av 500	2	8	8	8	8	No obvious damage	Single stems, vertical. Two trees with extensive bark damage	Canopies read as one. Scattered deadwood present.		F	>40	C	6.0	
T7	Midland hawthorn	<i>Crataegus laevigata</i>	M	6	MS	3 x 175	1	5	5	5	5	No obvious damage	Multi stemmed from base, vertical.	Dense rounded canopy. Pruning wounds from crown lift present.		F	20 - 40	B	3.6	
TG8	Pedunculate oak	<i>Quercus robur</i>	Y	4	5	75	1.5	.5	.5	.5	.5	No obvious damage	Single stems, vertical	Open and balanced	Tree supports present	F	>40	C	0.9	
T9	Sycamore	<i>Acer pseudoplatanus</i>	Y	7	S	20	3	3	3	3	3	No obvious damage	Single stem, vertical	Rounded canopy.	Suckered growth from base	F	>40	C	2.4	

TG10	Common hawthorn	<i>Cataegus monogyna</i>	Y/ SM	5	SM	Av 15	1	4	4	4	4	No obvious damage	Single and multiple stems, vertical	Canopies read as one. Minor deadwood		F	20-40	C	1.8	
T11	Sycamore	<i>Acer pseudoplatanus</i>	SM	6	S	600	4	8	8	8	8	No obvious damage	Single stem, vertical.	Rounded canopy. Scattered deadwood present.		F	>40	B	7.2	
T12	Whitebeam	<i>Sorbus aria</i>	SM	6	S	425	2	4	4	4	4	No obvious damage	Single stem, vertical. Occluded wound on trunk at 1 m.	Balanced, rounded canopy.		F	20-40	B	5.1	
T13	Silver maple	<i>Acer saccharinum</i>	SM	6	S	450	2	4	4	4	4	No obvious damage	Single stem, vertical.	Rounded canopy		G	>40	B	5.4	
T14	Hybrid black poplar	<i>Populus x canadensis</i>	SM	22	S	1100	4	10	10	8	8	No obvious damage	Single stem, vertical.	Open canopy. Minor deadwood		G	>40	A	13.2	
T15	Hybrid black poplar	<i>Populus x canadensis</i>	SM	21	S	1000	3	8	10	10	8	No obvious damage	Single stem, vertical. Wound from base to 1 m, occluding	Open canopy. Minor deadwood		F	>40	A	12.0	
TG16	Sycamore Common hawthorn	<i>Acer pseudoplatanus</i> <i>Cataegus monogyna</i>	SM	15	S/ MS	Av 425	2	8	8	8	8	No obvious damage	Single and multiple stems, vertical	Canopies read as one. Scattered deadwood. Vertical wound on one stem, occluding.		F	20-40	B	5.10	
T17	Sycamore	<i>Acer pseudoplatanus</i>	SM	14	S	Est 500	1	6	6	6	4	No obvious damage	Single stem, vertical.	Rounded canopy	Fencing impacting stem at base.	F	20-40	B	6.0	
TG18	Pedunculate oak	<i>Quercus robur</i>	Y	4	S	75	1	.5	.5	.5	.5	No obvious damage	Single stems, vertical	Open and balanced	Tree supports present	F	>40	C	0.9	
T19	Ash	<i>Fraxinus excelsior</i>	SM	16	4	275 300 350 475	2	5	5	5	5	No obvious damage	Multi stemmed from base. Vertical. Bark damage at 1 m, occluding	Rounded and balanced		F	>40	B	8.4	
TG20	Sycamore	<i>Acer pseudoplatanus</i>	SM	Av 16	S	Av 600	2	7	7	7	7	No obvious damage	Single stem, vertical.	Rounded and balanced		F	>40	B	7.2	
T21	Crack willow	<i>Salix fragilis</i>	M	22	S	975	3	12	8	5	8	No obvious damage	Single stem, Leaning to the north.	Open, suppressed by surrounding trees. Scattered deadwood.		F	>40	A	11.7	
T22	Hybrid black poplar	<i>Populus x canadensis</i>	M	22	S	1100	3	12	10	8	10	No obvious damage	Single stem, vertical.	Open and balanced. Minor		F	>40	A	13.2	

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Table 2 – Key to Tree Schedule

Measurements	Age – Class	Overall Condition	BS 5837 2005 : Cascade Chart for Quality Assessment/Retention Category	Symbols:
MS – Multi-stemmed	Y - Young	G – Good	A – High	< = less than
Ht - Height in metres	SM – Semi-Mature	F – Fair	B – Moderate	~ = approximately
Stem – Stem Diameter at 1.5m in mm	EM – Early-mature	P – Poor	C – Low	> = greater than
Crown – Crown spread in metres	M – Mature	D – Dead	R – Trees for Removal	
TD - Trunk division (height in metres)	V - Veteran Est Yrs – estimate of years remaining (>40 years; 20 –40 years; <20 years)		Sub-categories: 1 = mainly arboricultural values 2 = mainly landscape values 3 = mainly cultural values.	
RPA = Root Protection Area (equivalent to a circle with a radius 12 x the stem diameter for single stem trees and 10 x the basal diameter for trees with more than one stem arising below 1.5m above ground level).				

5.0 Tree Management

5.1 Arboricultural Assessment

Adjacent to the southern and south-eastern boundaries of the Site are two trees that could be impacted by the proposed development. Canopies and roots may extend into the working area.

It appears limited management has taken place to the trees off-Site. However, the majority of trees are in fair to good health, apart from T28 that was in poor health due to fungal disease and significant bark damage.

To ensure that the root areas and canopy extremities of the individual trees and the tree groups that may be retained are not damaged, a Constraints Plan has been prepared to show the locations where protective fencing should be erected for any trees selected for retention (see Figure 3). Any tree surgery required is best carried out towards the conclusion of the development so that, if necessary, any known root damage can be corrected by the appropriate crown thinning to restore root /shoot balance.

None of the trees were found to support potential features suitable for roosting bats.

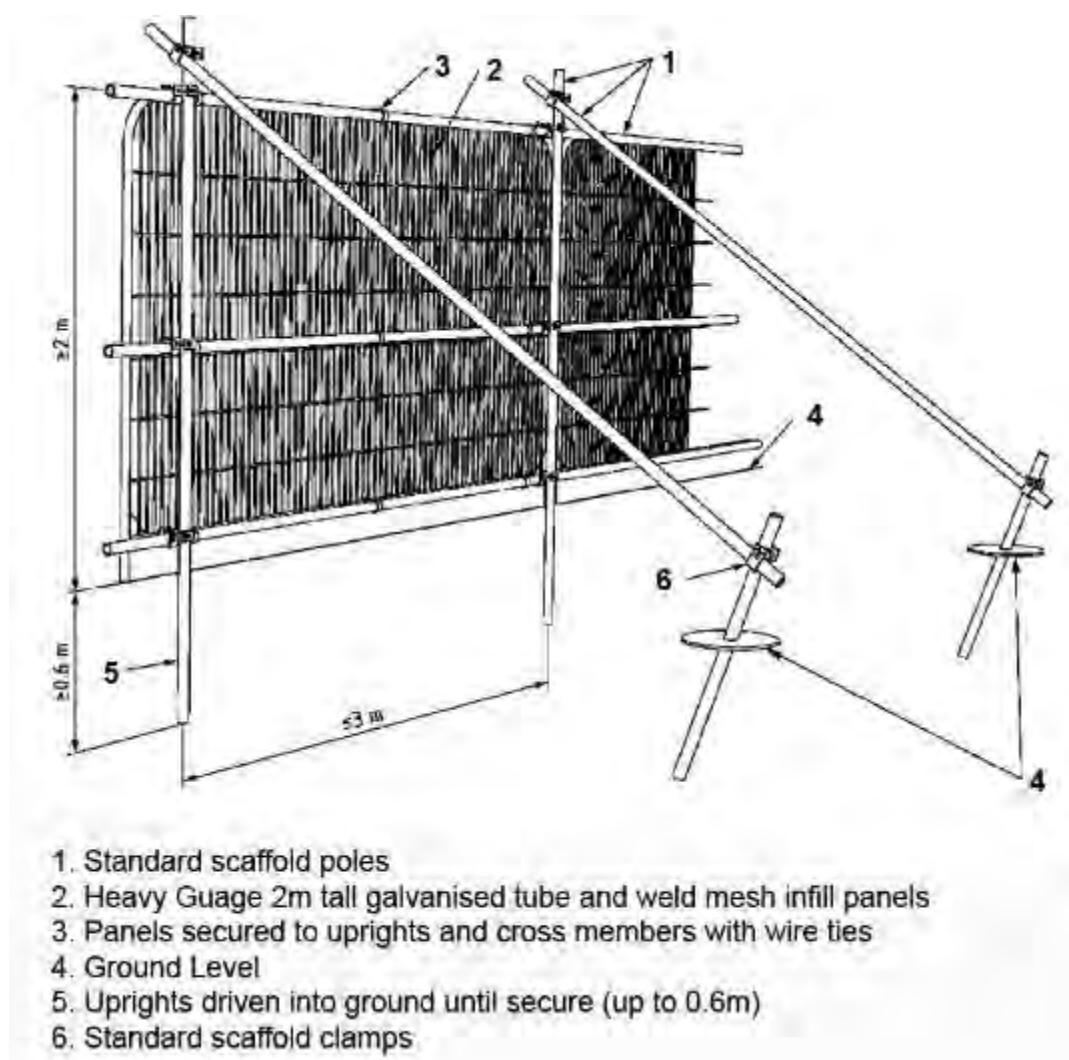
5.2 Recommendations

Recommendation 1 (Adequate Tree Protection)

Those trees identified within any development plan for retention will need to be adequately protected during any approved development works. As a general rule at this Site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to Design, Development and Construction (2012). Prior to any construction or development work proceeding, the RPAs of individual trees to be retained should be marked out using the distances provided in the Table 1. Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances would need to be made to accommodate this.

The best practice principles have been broadly summarised below:

- ▲ All trees retained adjacent to the Site should be protected by barriers or ground protection around the calculated RPA and as indicated on any Tree Constraints Plan (TCP) that may be produced in association with the assessment;
- ▲ Any fencing required should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor;
- ▲ Arrangements should be made for an arboriculturist to supervise works and tree protection where trees are particularly vulnerable or sited close to access points;
- ▲ Pre-development works may be undertaken prior to the installation of fencing with the agreement of the local planning authority;



- ▲ All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on-Site and be inspected annually (where overall condition requires) or every two years and after any major storm events, with safety a priority;
- ▲ Fencing should be clearly visible and suitable for the location, type and proximity of construction activity;
- ▲ It may be appropriate on some sites to use temporary site offices as components of the protection barriers;
- ▲ Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas this may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems;
- ▲ Once areas around trees have been protected by fencing, any works on the remaining Site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area;
- ▲ Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc where this is in close proximity to retained trees;
- ▲ Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10 m of a tree bole. No concrete mixing should be done within 10 m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree;

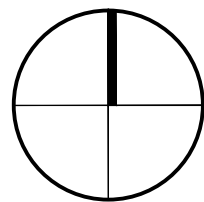
- ▲ No fires should be lit where flames are anticipated to extend to within 5 m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire;
- ▲ Notice boards, telephone cables or other services should not be attached to any part of a retained tree;
- ▲ Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited, tree surgery be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837 (2012). Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturist;
- ▲ It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above, to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact;
- ▲ In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development; and
- ▲ All of the above precautionary measures should be applied to minimise the effect of any damage to long-term tree health and safety.

6.0 Limitations of the Tree Survey

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Environmental Consultant.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Drawing 1 – Proposed Development Plan



EQUIPMENT KEY		(DRAWING REFERENCE)
A.	4m PANNA	(13034-DB3-BOX-XX-DR-A-90201)
B.	FOOTBALL TENNIS	(13034-DB3-BOX-XX-DR-A-90202)
C.	PASSING SQUARE	(13034-DB3-BOX-XX-DR-A-90203)
D.	STD LARGE GOAL	(13034-DB3-BOX-XX-DR-A-90204)
E.	STD CROSS-PLAY GOAL	(13034-DB3-BOX-XX-DR-A-90205)
F.	LARGE GOAL + 1v1	(13034-DB3-BOX-XX-DR-A-90206)
G.	MAIN PITCH S/O (B01)	(13034-DB3-B01-XX-DR-A-90207)
H.	MAIN PITCH S/O (B02)	(13034-DB3-B02-XX-DR-A-90208)
I.	LARGE GOAL + 1v1 + BASKETBALL	(13034-DB3-BOX-XX-DR-A-90214)
J.	RUN-LOOP MARKERS	(13034-DB3-BOX-XX-DR-A-90209)
K.	LINEAR BENCH	(13034-DB3-BOX-XX-DR-A-90210)
L.	CURVED BENCH	(13034-DB3-BOX-XX-DR-A-90211)
M.	1v1 + BASKETBALL	(13034-DB3-BOX-XX-DR-A-90212)
N.	J-SHAPED BENCH	(13034-DB3-BOX-XX-DR-A-90213)
O.	TYPICAL DETAILS SHEET	(13034-DB3-BOX-XX-DR-A-90217)
P.	FULL HEIGHT FENCE DETAIL	(13034-DB3-BOX-XX-DR-A-90215)
Q.	MINI FENCE DETAIL	(13034-DB3-BOX-XX-DR-A-90216)

BOWLS CLUB AND
BOWLING GREEN

PROPOSED SITE AND FINISHED
LEVELS TO BE DEVELOPED
WITH MAIN CONTRACTOR
POST-TENDER

EXISTING BASKETBALL
COURT TO REMAIN

EXISTING GRASS AREA TO BE
MADE GOOD ON COMPLETION
OF CONSTRUCTION WORKS

MAKE GOOD ALL AREAS OF THE PARK
DISTURBED BY CONSTRUCTION WORKS.
PROVIDE TOPSOIL AND GRADE GROUND
TO RECEIVE GRASS SEED TO MCC
SPECIFICATIONS AND STANDARDS

FORMER BOWLING GREEN TO BE MADE GOOD
ON COMPLETION OF CONSTRUCTION WORKS

MAIN CONTRACTOR TO MARK OUT FOR SMALL
SIDED FOOTBALL PITCH

MAIN PITCH
32.0m x 20.0m

STRAIGHT BENCH
8.0m x 0.65m

STRAIGHT
BENCH
8.0m x 0.65m

EXISTING TENNIS
COURTS TO REMAIN

EXISTING SKATE
PARK TO REMAIN

OUTLINE OF EXISTING
FOOTPATH & MUGA
DASHED

356m² OF NEW FOOTPATH
(SURFACE FINISH TO
MATCH EXISTING)

SPACE FOR
FUTURE FACILITY

TARGET WALL
& 1V1 GAME TO
BACK OF GOAL

132m² COLOURED
TARMAC TO
ANCILLARY AREA
(OBSIDIAN BLUE)

J-SHAPED
BENCH
4.0m x 0.65m

4500mm HIGH REBOUND FENCING

1100mm HIGH REBOUND FENCING

EXISTING PLAY
AREA TO REMAIN

OUTDOOR
FITNESS
EQUIPMENT

EXISTING RUN-LOOP
TO BE MADE GOOD

0 10 20m

1 PROPOSED SITE PLAN
1:200

1 PROPOSED SITE PLAN - OVE
SCALE

P2	12/09/19	AMENDED LAYOUT TO SUIT CLIENT COMMENTS	TL	TL
P1	20/09/19	AMENDED PROPOSED SITE LAYOUT IN LINE WITH RECENT COMMUNICATIONS	TL	TL
REV	DATE	DESCRIPTION	DR	CH

APPROVAL

darnton**B**₃
ARCHITECTURE
LEEDS

The Coach House, Monk Fryston Hall, Monk Fryston, LS25 5DU.
T: 01977 681 001 www.darntonb3.com

CLIENT
CITY IN THE COMMUNITY

PROJECT
PLAY ZONE PILOTS
LADYBARN PARK

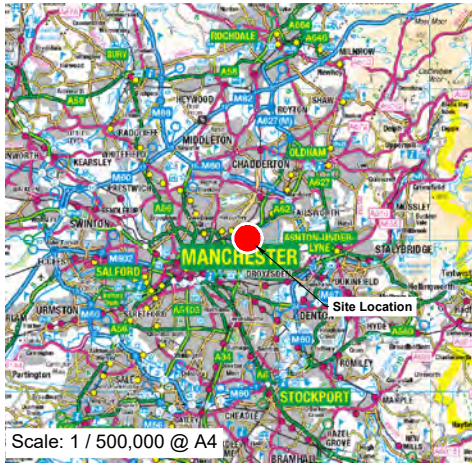
TITLE
PROPOSED
SITE PLAN

CREATION DATE	SCALE @ A1	DRN	CHK	STATUS
20/09/19	1:200	TL	TL	S4

SHEET NO.	REVISION
13034-DB3-B02-XX-DR-A-90103	P2

PROJECT NO: 030819030Z03E01V01TYPE:ROLE:NUMBER:
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Figure 1 – Site Location Map



LEGEND

Site Boundary



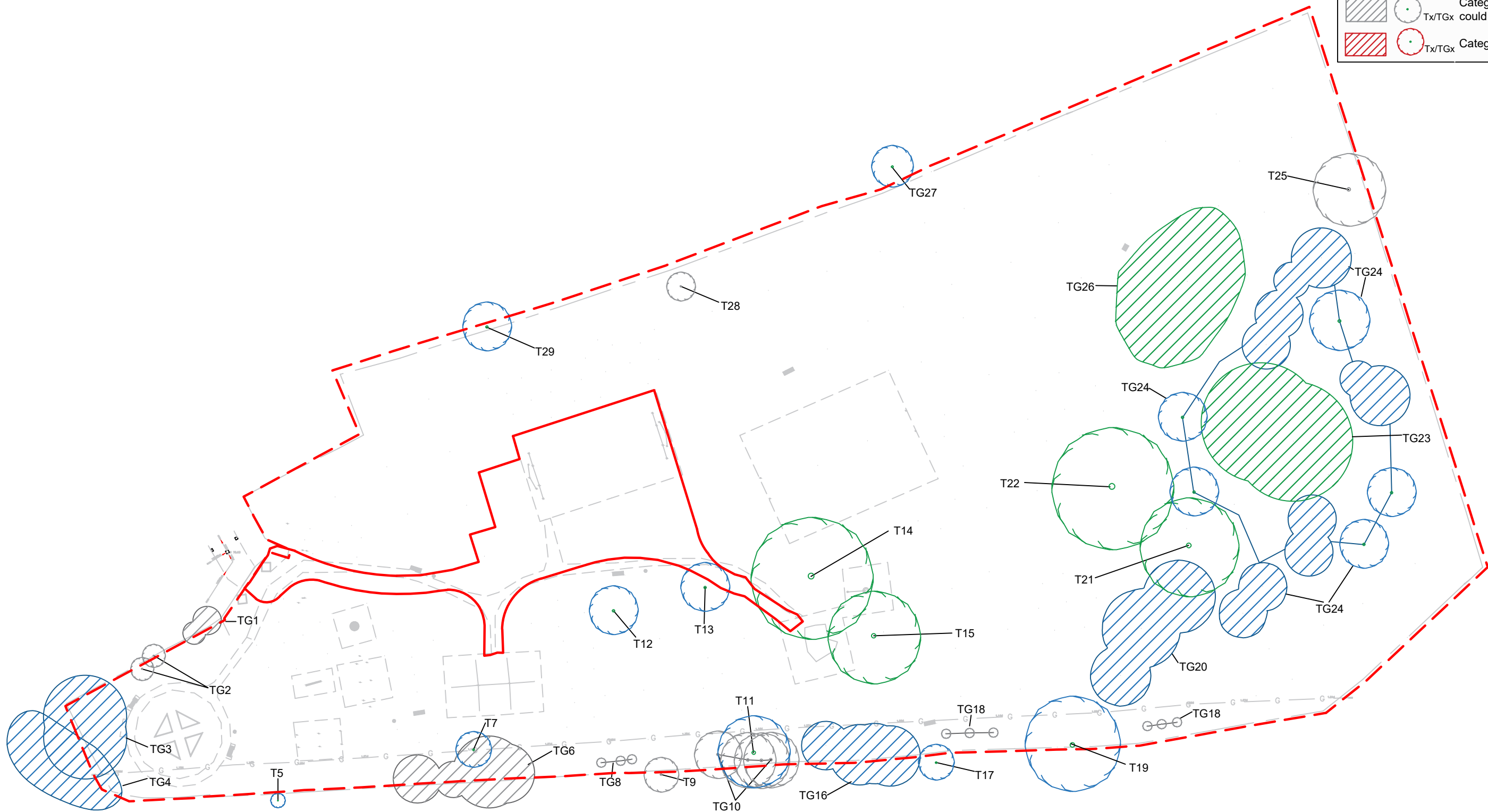
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Figure 2 – Tree Survey



LEGEND	
	Park Boundary
	Development Boundary
	Category A: High value retention most desirable
	Category B: Moderate value retention desirable
	Category C: Lower value could be retained
	Category U: For removal

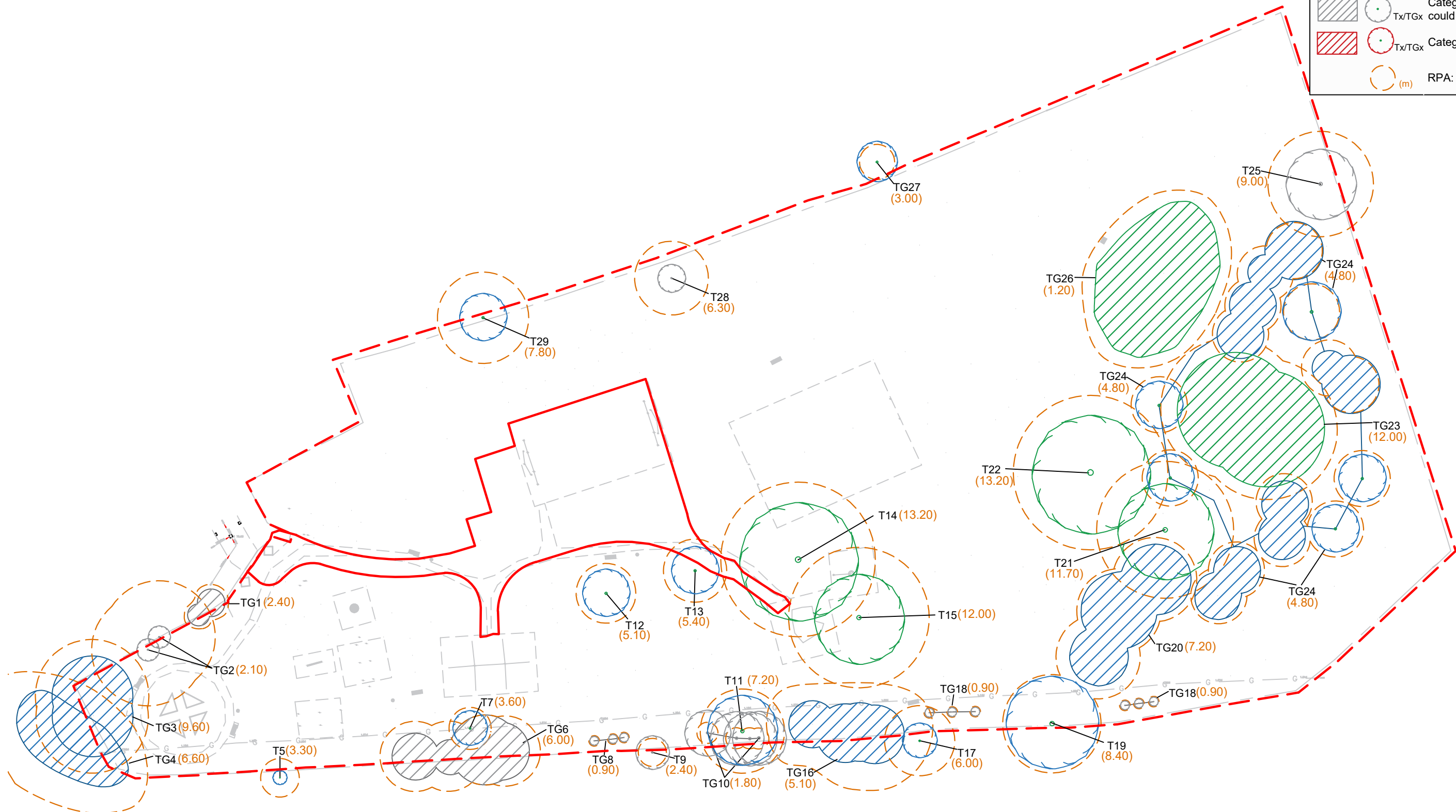


Site Plan Provided by Client

Figure 3 – Tree Constraints Plan



LEGEND	
	Park Boundary
	Development Boundary
Tx/TGx	Category A: High value retention most desirable
Tx/TGx	Category B: Moderate value retention desirable
Tx/TGx	Category C: Lower value could be retained
Tx/TGx	Category U: For removal
(m)	RPA: Root Protection Area



Site Plan Provided by Client

Appendix A – References

References

BSI Publication BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.

BSI Publication BS 5837:2005 Trees in Relation to Construction - Recommendations.

Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good practice guidelines (3rd edition). The Bat Conservation Trust, London.

Stace, C. (2010). *New Flora of the British Isles 3rd edition*. University Press, Cambridge.

Appendix B – Guidance on Assessing the Potential Suitability of Development Sites to Support Bats

Guidance on Assessing the Potential Suitability of Development Sites to Support Bats

(adapted from Collins, J. (ed)).

Suitability	Description	
	Roosting	Commuting and Foraging
Negligible	An inspected structure or tree which is considered to have no features of importance for roosting bats. No further constraints apply to the method or timing of proposed works.	Negligible habitat features on-Site to support commuting or foraging bats
Low	A structure with at least one or more features suitable to support opportunistic individual bats. However, inadequate space, shelter, protection and conditions, and the low suitability of surrounding habitats means that it is unlikely to be used as a maternity or hibernation roost site. A tree of adequate age and stature to support potential roosting features, however, either no features, or only features of limited potential recorded from the ground.	Habitat with potential to support low numbers of commuting bats due to its quality and connectivity. For example, a gappy hedgerow or unvegetated stream that is isolated from the surrounding landscape. Alternatively, suitable but isolated habitats suitable to support low numbers of foraging bats such as a lone tree or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that are of adequate size, shelter and protection, with suitable conditions and surrounding habitat to support a bat roost not of high conservation status (with respect to roost type not individual species conservation status).	Linear habitat continuity connecting to the wider landscape offering potential to support commuting bats, such as rows of trees and scrub or linked back gardens. Habitat such as trees, scrub, grassland or a waterbody with connectivity to the wider landscape offering foraging opportunities for bats.
High	A structure or tree with one or more potential roost sites that are suitable for use by large numbers of bats on a regular basis and for long periods of time due to their size, shelter, protection, conditions and the surrounding habitat.	Continuous high-quality habitat with strong connectivity to the wider landscape that is likely to be used by commuting bats on a regular basis, such as flowing waterbodies, hedgerows, rows of trees and woodland edges. High quality habitat with strong connectivity to the wider landscape that is likely to be regularly used by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to, and connected to, known roost sites

Appendix C – Site Photographs

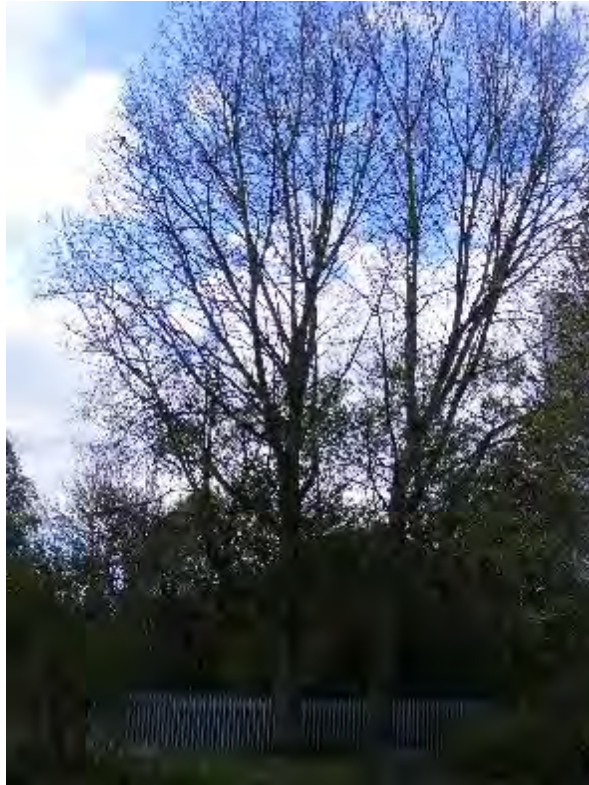
Site Photographs



Photograph 1 – Tree group (TG) 1



Photograph 2 – TG2



Photograph 3 – TG3 and TG4



Photograph 4 – Tree (T)5



Photograph 5 – TG6



Photograph 6 – T7



Photograph 7 – TG8



Photograph 8 – T9



Photograph 9 – TG10



Photograph 10 – T11



Photograph 11 – T12



Photograph 12 – T13



Photograph 13 – T14



Photograph 14 – T15



Photograph 15 – TG16



Photograph 16 – T17



Photograph 17 – TG18



Photograph 18 – T19



Photograph 19 – TG20



Photograph 20 – T21



Photograph 21 – T22



Photograph 22 – TG23



Photograph 23 – TG24



Photograph 24 – T25



Photograph 25 – TG26



Photograph 26 – TG27



Photograph 27 – T28



Photograph 28 – TG29