Tree Survey (BS5837: 2012) & Arboricultural Impact Assessment

British Legion, Longridge

Cameron S Crook & ASSOCIATES
Millstones, Woodstock Close, Lostock Hall,
Preston, Lancashire PR5 5YY
tel: (01772) 316717
e-mail: info@csc-associates.co.uk

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CSC&A

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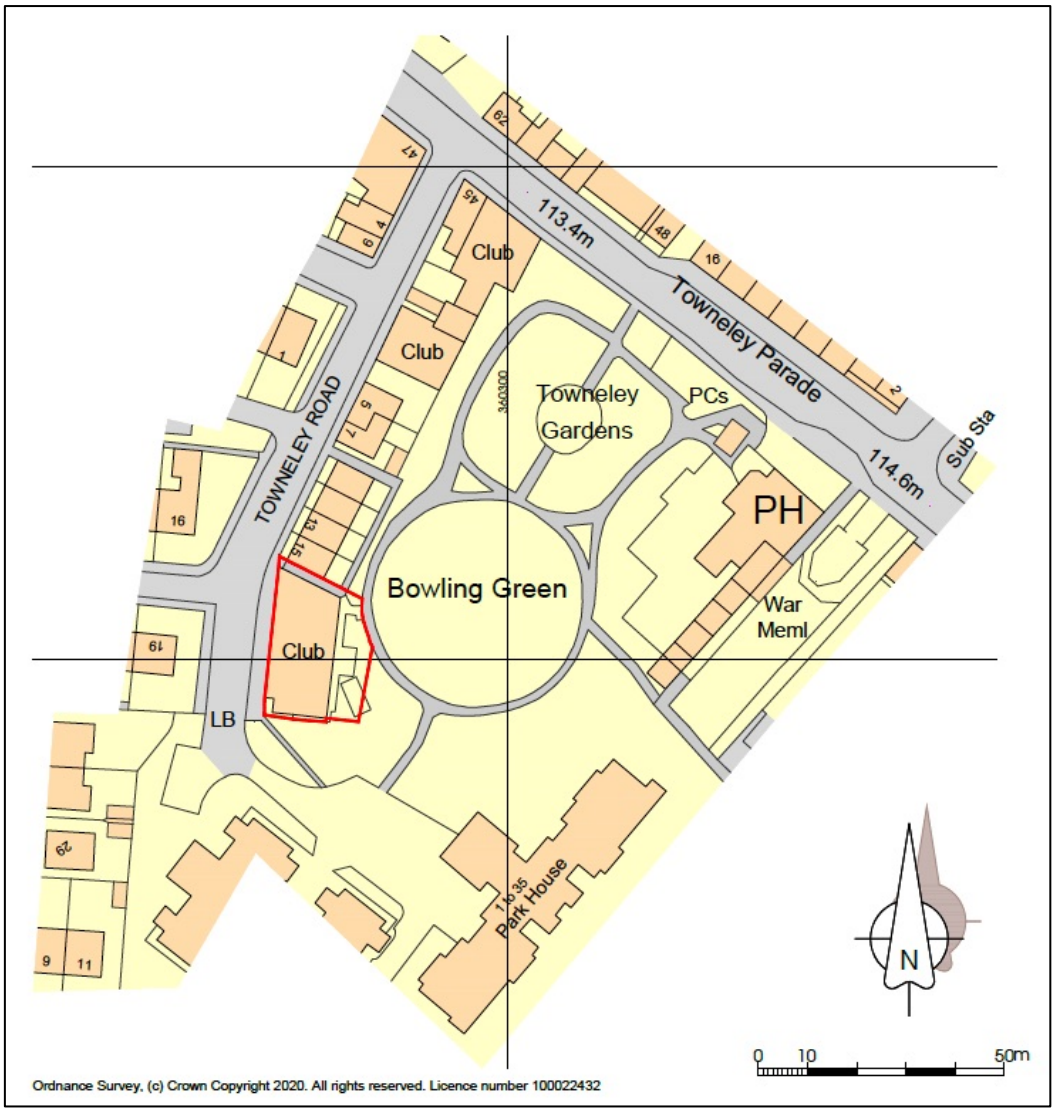
1.0 Introduction

1.1 The site proposed for development comprises the former British Legion off Towneley Road, Longridge. All trees reasonably considered close enough to be affected by within location indicated in *Figure 1* below, were briefly surveyed following the methodology recommended in British Standard BS5837: 2012.

Figure 1 *Site location and area of survey (within red line boundary)*



1.3 The survey was carried out by Mr Cameron S Crook BSc(Hons) MPhil MArborA, on the 7th November 2019 with a repeat visit on the 22nd October 2020 to confirm there had been no changes in the interim. Each of the trees surveyed has been identified on the site plan in Section 7.0 situated to the rear of this report. All trees were inspected and have been categorised in accordance with guidelines detailed within BS5837: 2012 *Trees in relation to design, demolition and construction.*

1.4 This survey is valid for twelve months from the date of the site inspection. As living organisms, the condition of trees can change rapidly in response to environmental variables. Any comments provided below made in respect of tree condition, can only therefore be applicable to the date of survey. Regular inspection by an arboriculturalist is therefore recommended to reduce the foreseeable risks associated with trees.

2.0 Methodology

2.1 All trees within the vicinity of the area proposed for development, including both individual trees and groups of trees were surveyed where there was considered any reasonable likelihood of an impact resulting from development proposals. The tree survey comprised a ground-based visual inspection only, aided by binoculars where required.

2.2 In accordance with BS5837: 2012, the purpose of the categorizations within the survey schedule is not to determine whether or not trees should be retained but to identify the quality and value (in a non-fiscal sense) of the existing tree stock, thereby allowing an informed decision to be made concerning which trees should be removed or retained where development works are proposed. This survey report should therefore be regarded as an initial appraisal and observation of the stock including a preliminary assessment and recommendation with respect to the Tree Root Protection Areas (RPAs).

2.3 A detailed inspection of individual trees with respect to decay, defects and hazard has not been allowed for in this survey though any trees found to be in a structurally dangerous condition have been identified accordingly.

3.0 Arboricultural Considerations

3.1 The growth and development of tree roots is seldom entirely predictable. Tree roots grow in an opportunistic manner and are more prolific in areas where conditions are favourable. Conversely, they tend to be deflected by natural features and man-made structures, root growth being severely limited when hostile conditions are encountered.

3.2 Trees may be injured during the construction process from both direct and indirect means:

- Direct Damage comprises an injury results from physical contact including with machinery, equipment or fire, and excavation of the rooting area

- Indirect Damage comprises an injury results from activities that take place near the tree such as changes in level, compaction of the soil, or contamination by chemical spillage in proximity of the root plate

3.3 Decline due to an injury caused during construction or other site works may not be immediately evident, but may present later, potentially months or years after the event.

3.4 The purpose of calculating *Root Protection Area* is to ensure that a sufficient area of the tree root system and its respective growing environment is protected from disturbance. The aim is to protect an area around each retained tree of sufficient size to maintain health and vigour and ensure the longevity of the retained trees.

3.5 The *Root Protection Area* is not directly related to the canopy spread of the tree but is in fact a multiple of the stem diameter; specifically, twelve times the stem diameter measured at 1.5m above ground level. For the largest trees, the Root Protection Area is capped at a radius of 15 metres or a total area of 707m^2.

4.0 Protection of Retained Trees

4.1 The area indicated on the site plan (pale purple shading) as Root Protection Area (RPA), enclosed within a solid purple line, should be treated as a 'no go' within which no activity associated with development works should take place. The area and extent of the RPA is defined in British Standard 5837: 2012 and relates to the stem diameter of each respective tree, measured at a height of 1.5m above ground level. The outer edge of the RPA is taken to be the closest position from the base of the tree in respect of the location for protective fencing.

4.2 However, where it has been considered appropriate by the appointed arboriculturalist, though only in respect of individual open grown trees, BS 5837 allows for a displacement of the Root Protection Area by up to 20%, which may also vary from a perfect circle, to allow for specific site conditions. Existing barriers to root development such as existing roads, footpaths and buildings have also been taken into consideration and are represented by a dashed purple line.

4.3 In circumstances where the LPA agrees to activity taking place within the RPA, it is likely that special measures will be required, such as the use of 'no dig' construction methods.

4.4 To ensure the continued good health of any trees that are to be retained trees, it is essential that root severance or compaction of the soil in the Root Protection Area are avoided. To achieve this, a robust fence should be erected at the position shown on the plan (orange hatched line). Exact measurements should reflect the distances provided within the table and should not be scaled from the plan. All protective fencing should be erected prior to any site materials or machinery being brought onto site, and should ideally comprise a scaffold frame with steel mesh panels securely attached (eg Heras). Mesh is preferable to boarding as it can be seen-through and will be re-useable. Use of rubber or concrete feet instead of a frame is not acceptable as these can easily be moved. Once in place, the fence must be regarded as a strict 'no go zone' and no storage of materials/spoil or access by machinery should be allowed within the protected area.

4.5 All weather notices should be fixed to the barrier reading "*Root Protection Area – No Access*".

4.6 Where temporary access within the Root Protection Area is agreed, the fence may require realignment and the ground surface protected. For vehicular access this protection will need to be specifically detailed and agreed.

4.7 Site operations such as deliveries, site machines, crane jibs etc should be organised to avoid damaging the trunk or crown of trees. Where this is unavoidable, facilitative pruning should be carried out in advance, rather than after damage has occurred. This may be required to allow demolition operations.

4.8 Material which could contaminate the soil such as concrete mixing, fuel, vehicle washings etc should not be discharged within 10m of the stem of any tree, and not on ground beyond sloping down to the tree.

4.9 No fires should either be permitted, or lit where flames could extend to within 5m of the foliage, branches or trunk.

4.10 There should be no notice boards, cables, nails or other items should be attached to any part of the tree.

5.0 Cascade Chart for Tree Quality Categories

TREES FOR REMOVAL			
Category	**Criteria**		
'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 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 'R' category trees (ie 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 (eg Dutch Elm disease) or very low quality trees suppressing adjacent trees of better quality. **NOTE:** Habitat reinstatement may be appropriate (eg 'R' category tree used as bat roost)		
TREES TO BE CONSIDERED FOR RETENTION			
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural values, including conservation**
'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 their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (eg 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 (eg avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg veteran trees or wood pasture)
'B' **Those of moderate quality and value:** 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 (eg presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (eg trees of moderate quality within an avenue that includes better 'A' category specimens) or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits
'C' **Those 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
	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 150 mm should be considered for relocation		

6.0 Schedule

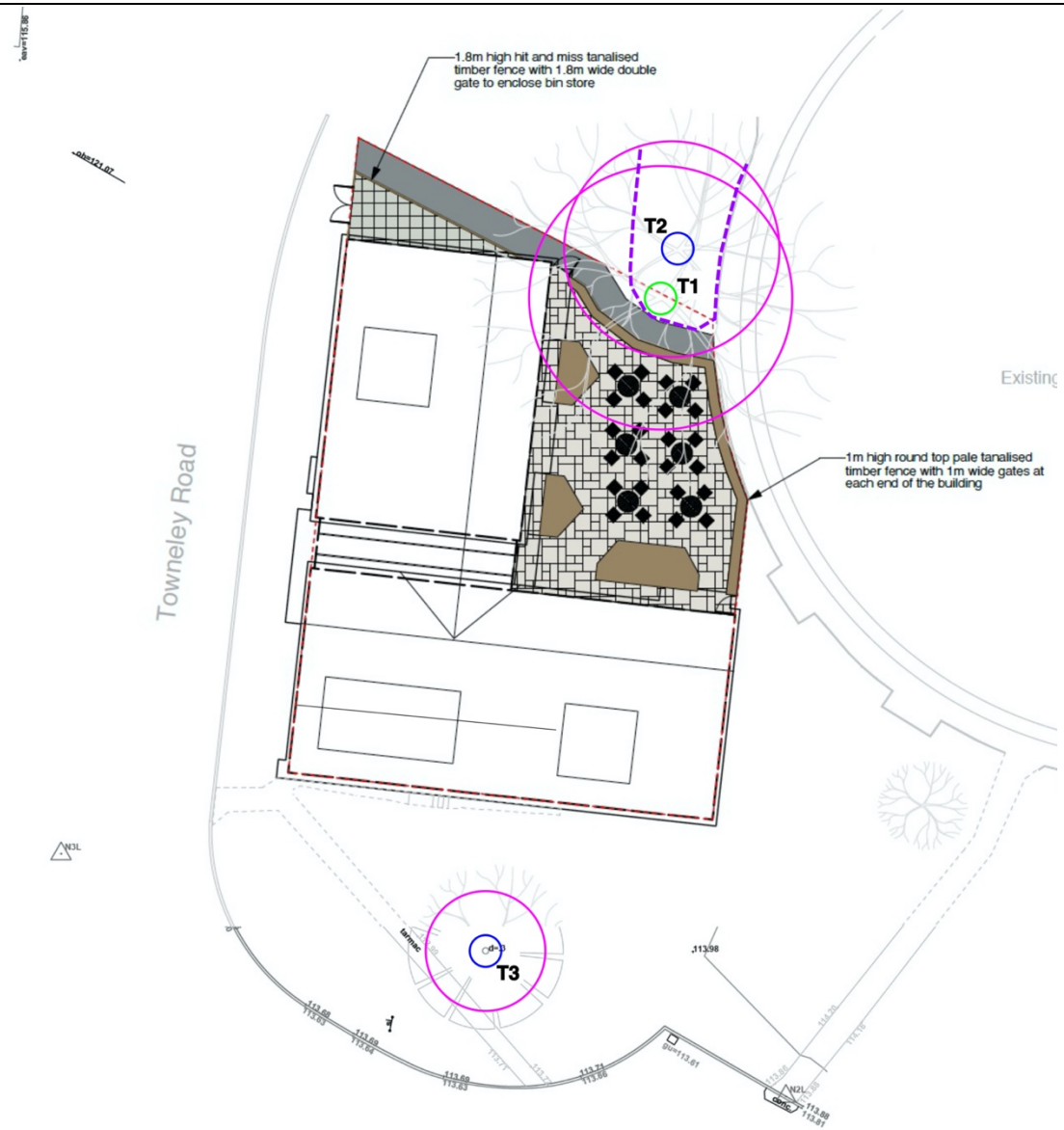
6.1 The provided below within the schedule below is laid out in accordance with the requirements of BS 5837: 2012, as follows:

- Tree Number (T1, T2, G1, G2 etc.)
- Tree Species (common name)
- Height (metres)
- Trunk diameter (mm) at 1.5m (immediately above root flare for multi-stemmed trees)
- Multi-stem Category (2 = twin stemmed; <5 = 3-5 stems; >5 = more than five stems)
- Crown spread N S E W (metres)
- Crown clearance (height of lower branches above ground in metres)
- Age class (Young, semi-mature, mature, over-mature, veteran)
- Physiological condition (**G**ood, **F**air, **P**oor, **D**ead). An assessment of vitality (leaf or bud size/colour/density, annual extension growth, lack of die-back etc)
- Structural condition (**G**ood, **F**air, **P**oor, **D**ead). An assessment of structural integrity and the presence of structural defects
- Estimated age remaining (years, 0-10 10-20 20-40 40+).
- Root Protection Area from BS 5837: 2012 (area in square metres and as a radius in metres). This is the basis of the Root Protection Area marked as a circle on the Tree Constraints Plan (may have been modified in light of site circumstances). Generally represents the minimum distance from the tree for protective fencing. With respect to groups of trees, the average RPA per tree is quoted and is plotted, overlapped as necessary, on the tree protection plan
- Tree Quality Category grading (see Cascade Chart below for explanation):
  U = Remove (irremediable or with less than 10 years contribution).
  A = High quality and value, preferably with min. 40 years contribution.
  B = Moderate quality and value.
  C = Low quality and value, including young trees with a stem diameter below 150mm, which may be considered for relocation
  Subcategory:
  1 = mainly arboricultural merit.
  2 = mainly landscape merit.
  3 = mainly cultural or conservation merit.
- Notes and recommendations for management, where appropriate.

6.2 All individual trees or groups of trees surveyed are indicated on the site plan to the rear of this report using the appropriate tree number.

Tree No.	Species	Height (m)	Trunk diameter (mm at 1.5m)	Multi-stem category	Crown spread (m)				Crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated Age Remaining	RPA – area (m^2)	RPA – radius (m)	Tree Quality Category	Notes & Recommendations
					N	S	E	W									
T1	Oak	15	550	-	3	9	6	6	3	M	Good	Good	40+	137	6.6	A1	A large, spreading, mature tree in a prominent position situated on adjacent land to the northeast of the site. Some deadwood, damaged branches and cavities but all within acceptable limits for the species. The roots are partially contained within a raised border with a stone retaining wall, beyond which is an existing area of concrete. Retain and prune to remove deadwood and damaged branches. May require some minor crown reduction to clear the top of the proposed new building.
T2	Sycamore	12	450	-	6	2	4	6	3	M	Good	Fair	40+	92	5.4	B1	A large mature tree in fair overall condition but slightly misshapen due to proximity to T1. Some deadwood and damaged branches but within acceptable limits. As for T1, the roots are partially contained within a raised bed which is separated from the site by a low stone retaining wall. Retain and remove deadwood and damaged branches.
T3	Oak	7	250	-	3	4	4	5	2	EM	Good	Good	40+	28	3.0	B1	An early mature tree situated within and existing area of public open space. Relatively good condition with no obvious major defects.

7.0 Site Plan



Notes

Trees listed in the schedule below are indicated on the drawing as T1, T2 and T3. These are shown overlain onto the proposed layout and landscaping

The Root Protection Areas (RPAs) of the respective trees are indicated by the pink circles

Existing root barriers, where applicable, are denoted by a dashed purple line (see *Figure 2* below)

8.0 Impact Assessment

The following is a summary of the trees will be impacted resulting from the proposed development.

Tree Schedule Number	Species	Age Class	Category	Nature of Impact
T1	Oak	M	A1	There will be an incursion into the RPA though the existing rooting area is effectively isolated by an existing low stone retaining wall, the tree being raised some 400-500mm above adjacent ground level. The actual loss of roots is therefore likely to be minimal and the level of impact relatively low providing adequate root protection precautions are implemented during site works
T2	Sycamore	M	B1	As for T2 though the incursion into the notional RPA is much less so any impact upon the effective root area is likely to be negligible

Figure 2 *Detailed view of the tree base and existing barrier in respect of T1 (foreground) and T2 (to the rear)*