

Trees and Construction

BS5837 Tree Survey Assessment

Site: 1712 Tetlow Street, Walton, Liverpool

Ref: 14565 / A1

Client: BYA Ltd



(Mail) 2nd Floor | 1 Hunters Walk | Canal Street | Chester | CH1 4EB

0333 123 7080 | info@indigosurveys.co.uk

www.IndigoSurveys.co.uk

Arboricultural Consultant (Author):	Arboricultural Consultant (Checked by):
Tony Banner <i>TechCert (ArborA), TechArborA</i>	Andrew Turnbull <i>FDS Sc MA ArborA</i>

- February 2015 -

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Revision	Description	Date
/	/	/

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for BYA Ltd (hereafter; client) and is in respect of the tree related considerations at the 1712 Tetlow Street, Walton, Liverpool (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.
- 1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.
- 1.4 Following instruction the consultant surveyed the site on the 10th February 2015 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.
- 1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.
- 1.6 The survey data and site observations use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site currently comprises a derelict open land section off Tetlow Road, accessible by pedestrians off Tetlow Street and surrounding footpaths.
- 2.2 **Proposal:** It is understood that a proposed scheme involves the construction of residential properties at site which will include a general scheme of landscape improvement, parking provision and access improvement onto and around the site.
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'C - low' being attributed to trees/tree groups as well as those categorised as 'U' for either small scale trees or those dead, dying or dangerous trees needing to be removed.
- 2.4.2 For the most part, the trees at site are situated towards the north boundary. All growth is of limited value and contribution to the amenity of site. The majority are suffering due to vandalised stems and identified defects, this has resulted in the recommendation for tree removals, i.e. the category 'U' trees and standing deadwood.

3. FINDINGS & RECOMMENDATIONS

- 3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (14565/TCP/01).

Also, in reference to the proposed scheme (ref: 1712-05F), comments are made where relevant as 'NOTE'.

3.2 General Considerations for Tree Retention / Removal

- 3.2.1 Due to the poor condition and defects noted to the trees categorised as 'U' and in the context of a residential development with regular future site use it is recommended that T4 and T5 be removed. Also, the standing deadwood in the west and the felled tree in the east of site should be removed.

- 3.2.3 The low quality 'C' category trees (T1 - T3, T6 - T11 and G1 - G4), are noted as such due to their curtailed remaining contribution caused by vandalism. All have varying degrees of stripped bark and stem damage. Also, fires have been lit within some groups causing fire damage to surrounding stems and lower laterals. As such, said trees should not significantly constrain nor guide a scheme; mitigation planting as part of a landscape scheme would be required.

NOTE: The proposal shows all 'C' category trees as being removed. As above, said trees should not significantly guide nor constrain the scheme. Hence, the removals are considered acceptable as the proposal shows a considered approach to new tree planting. Further, replacement planting would mitigate said tree loss, and, in conjunction with the proposal, would represent an improvement to the amenity.

- 3.2.5 In order to make the site developable and provide suitable construction space, tree removal is anticipated (as also demonstrated within the design). The removal of said trees or vegetation may have an impact on the green cover in the first instance, however, the scheme presents a significant enhancement opportunity. As such, the removals mentioned above will be tolerable where a considered approach is taken with the design layout and new landscape tree planting.

3.3 Tree Protection

- 3.3.1 The design and layout of the site is to incorporate the essential components of retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long term safe retention, i.e. RPA protection and crown clearance as well as for any new tree(s) being planted; however, tree removals are recommended and anticipated for the scheme and hence, focus will be delivered to new planting delivery.

- 3.3.2 Depending on the level of tree retention/removal, the protection methods for the retained trees is likely to vary. However, it is likely that a combination of construction restrictions be used with protective barrier fencing (to protect RPAs).

The process of site operations will be an important aspect to confirm by way of a construction layout plan, i.e. showing storage areas, parking, delivery area, access routes etc., all outside of RPAs or with a provision for ground protection. As a basis for tree protection the following points will need to be considered:

- Removal of all agreed trees and any agreed pruning works prior to works commencing by a suitably qualified arboricultural contractor;
- Induction of construction personnel regarding the exclusion of works (including access and storage) from the retained trees' RPAs;
- Secure temporary barrier fencing around the site to exclude the retained tree's crowns and RPAs from the working site;
- The storage of materials clear of all retained trees and conditions to ensure no contamination/run-off into soils in proximity to trees or on higher ground;
- For the removal of existing structures and/or hard surfaces from RPAs the works to be undertaken separate to construction, manually and sensitively.

3.4 General Overview

- 3.4.1 The considerations for trees which are to be retained as part of the proposal need to be addressed in order to ensure their protection. This is to account for the potential impact on retained trees and their growing environment from the proposed development and vice versa (these follow).

Tree Works

The tree removals to facilitate the scheme are to be justifiable in the context of the site layout and are to be mitigated by way of a landscape scheme; new tree planting will be required to replace and enhance the site's canopy cover with a general scheme of landscaping in acknowledgement for the removal of poor quality trees.

Any trees which are to be removed should be well indicated to ensure that the retained trees are suitably protected. Hence, all trees which are to be removed are to be marked by a suitably qualified person [spraying the stems with a cross] prior to tree works.

Tree Crowns

Consideration is required for both existing and newly planted trees whereby the proposed construction should take account of trees reaching their full growth potential. It is always prudent to provide adequate clearance from a tree's current crown for future growth, i.e. to allow a tree adequate space to reach maturity without conflicts with new structures.

Root Protection Areas (RPA)

As a minimum it would be suitable to consider the outer extents of retained trees' RPAs as construction exclusion zones and be protected.

As above, it is *sometimes* possible to undertake construction activities within the rooting areas of retained trees which requires greater attention to tree protection, foundation designs, phasing of works etc. If it is proposed to undertake works within these areas, more specific advice should be sought from a qualified arboriculturalist with a view to assessing the feasibility of said proposal and forming a suitable method statement.

Demolition/Excavation Works

Any removal of existing built structures (including stairways, small outbuildings, retaining walls etc.) or hard surfacing will need to be undertaken with great care where this occurs within or near to the anticipated rooting areas of retained trees.

Said works should adhere to the RPA restrictions, be undertaken manually with hand held non mechanical tools and ensure that existing ground levels are retained.

Hard Landscape Works

As with previously mentioned arboricultural restrictions to demolition/construction, the proposed works should avoid retained trees' RPAs. However, where ground works are proposed within RPAs, construction methods [for hard surfacing, walls etc.] should retain the existing ground levels, be undertaken sensitively and using a no dig design.

Conversion of soft surfaced areas within RPAs to hard surfaced walkways, parking areas etc., will need to utilise a no-dig product to ensure no negative impact on the tree roots and/or growing conditions.

- 3.4.2 For any proportion of tree removal, new tree planting is to be integrated into a landscape scheme. The new trees should be of a suitable volume, species, scale, in suitably prepared planting locations with adequate space for future growth and development and enhance the site's long term amenity contribution.

NOTE: Based on the residential use of the site, good tree planting space is anticipated. It is necessary however to consider and avoid future canopy/shade conflicts. The proposal shows new plantings to the front and rear gardens of the units. Therefore it is advised, for units 1 - 6 and 8 - 11 to concentrate on smaller scale fastigate species for the front gardens and small/medium scale trees for the rear; units 7 and 12 - 15 could tolerate larger scale species planted along their north boundary and within their rear gardens.

3.5 Additional Details

- 3.5.1 The surveyed trees have been subject to a detailed inspection and the arboricultural considerations detailed within this advice. The advice herein is intended to guide a suitable design in consideration for the site's valuable amenity assets.

Where retained trees are avoided and removed trees are mitigated, typically, the considerations herein can form part of tree related planning conditions. These are then detailed within a method statement based on the approved scheme; proposed construction near trees may require detailed method statements to support the planning application and should be requested where present within the design.

- 3.5.2 Where the aspect of tree removal is supported by the council, the removals mentioned herein will leave arboricultural constraints which can be managed effectively, i.e. by the use of the barrier fencing etc. The use of planning conditions for detailed protection methods and new tree planting proposals are therefore considered suitable.

- 3.5.3 The finer details of the tree planting proposals are to be illustrated on a tree planting landscape plan. This is to include the exact proposals for hard and soft landscaping together with the details for tree planting locations, species and stock selection, installation and maintenance; this is to be undertaken by the appointed landscape architect who will have the full support of the arboricultural consultant where required.

This concludes our advice.

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table: As appended (BS5837 Tree Survey Key & Table)

Tree Constraints Plan: As appended (14565/TCP/01)

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

FIELD KEY:

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, SM - semi mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years the tree will continue to make a contribution without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate Standard retention category U : in such a condition that any existing value would be lost within 10 years;
	-	Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years;
	-	Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years;
	-	Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established
	-	Standard retention sub-category, mainly due to: 1 - Arboricultural values, 2 - Landscape values, 3 - Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
' * '	-	Within the survey schedule denotes an estimate

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: BYA Ltd				PROJECT REF: 14565				SITE: Tetlow Street, Walton, Liverpool								
CONTACT: /				SURVEY DATE: 10th February 2015				ARB CONSULTANT: Tony Banner TechCert (ArborA), TechArborA & Andy Turnbull FDSc MArborA								
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	Norway Maple; Acer, Aceraceae	SM / M	8.5	4	4	4	4	290	3.5	3	2.5	Normal	20 - 40	Planted in south west corner close to boundary, stem damage in various parts to 2m.	C 3	Monitor trees condition.
T2	Norway Maple; Acer, Aceraceae	SM / M	12.5	4	2	5	1	310	3.7	3	3	Fair	20 - 40	In G1, planted in north west corner close to boundary, basal stem damage, fair form.	C 3	Monitor trees condition.
T3	Norway Maple; Acer, Aceraceae	SM / M	13	2	3	2.5	2.5	290	3.5	3	2	Fair	10 - 20	In G1, planted in north west corner close to boundary, basal stem damage, fair form, acute union at 3m.	C 3	Monitor trees condition.
T4	Norway Maple; Acer, Aceraceae	SM	13	3	0	3	3	180	N / A	3	0	Poor	< 10	In G1, planted in north west corner close to boundary, near dead, stem damage and bark stripped.	U	Fell tree.
G1	Norway Maple Group	SM / M	< 14	/	/	/	/	< 310	3.7	2	/	Poor / Fair	10 - 20	In G1, planted in north west corner close to boundary, stem damage and stripped bark throughout.	C 3	Monitor trees condition.
T5	Norway Maple; Acer, Aceraceae	SM / M	10	1	1	1	1	310	N / A	2	2	Dead	< 10	Dead stem, ring barked and fire damage.	U	Fell tree.
T6	Norway Maple; Acer, Aceraceae	SM / M	12	2	3	3	2	240	2.9	2	2.5	Fair	20 - 40	In G2, planted in north of site, stem damage.	C 3	Monitor trees condition.
G2	Norway Maple Group	SM / M	< 12	/	/	/	/	< 310	3.7	2	/	Poor / Fair	10 - 20	Planted in north of site, stem and fire damage throughout.	C 3	Monitor trees condition.
T7	Lime; Tilia, Tiliaceae	SM	11	5	4	5	3.5	330	4.0	1	1.5	Fair	20 - 40	Planted in north of site adjacent to G3, basal stem damage, stem lean east.	C 3	Monitor trees condition.
T8	Norway Maple; Acer, Aceraceae	SM / M	11	4.5	2	1	3	380	4.6	2	1.5	Poor	10 - 20	Planted in the north of site in G3, stem damage from base to 4.5m, lower laterals removed with stubs left, deadwood and dieback.	C 3	Monitor trees condition.
T9	Norway Maple; Acer, Aceraceae	SM / M	12	6	5	3	4.5	440	5.3	3	2.5	Fair	10 - 20	Planted in the north east corner of site close to boundary, basal stem damage to 1m.	C 3	Monitor trees condition.
T10	Norway Maple; Acer, Aceraceae	SM / M	11	4.5	3	4	3	320	3.8	3	2	Poor	10 - 20	Planted in the north east corner of site close to boundary, stem damage to 1.5m.	C 3	Monitor trees condition.
T11	Norway Maple; Acer, Aceraceae	SM / M	12	4	6	3.5	2	430	5.2	4	2.5	Fair	20 - 40	Planted in the north east corner of site close to boundary, slight stem lean south, stem damage, fair form.	C 3	Monitor trees condition.
G3	Norway Maple Group	SM / M	< 12	/	/	/	/	< 430	5.2	3	/	Poor / Fair	10 - 20	Planted in the north corner of site close to boundary, stem and fire damage throughout.	C 3	Monitor trees condition.
G4	Norway Maple Group	SM / M	< 12	/	/	/	/	< 380	4.6	2	/	Poor / Fair	10 - 20	Planted in the north east corner of site close to boundary, 6x stem, 2x basal damage, 1x included wire in base.	C 3	Monitor trees condition.



KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

Tree Condition Category

- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'

REV.	DESCRIPTION	DWN	CHK'D	DATE
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CLIENT	BYA Ltd
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PROJECT	14565 Tetlow Street, Walton, Liverpool
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TITLE	Tree Constraints Plan
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DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
rk	10/2/2015	TB	18/2/2015			1:250


(Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester. CH1 4EB
Telephone: 0333 123 7080 www.indigosurveys.co.uk

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