Arboricultural Survey & Report

Impact Assessment & Method Statement in Support of Development

BS5837:2012 Trees in relation to Design, demolition and construction – Recommendations

CLIENT:	Mr James Craig
SITE REF:	74 Dynham Road
MWA REF:	DEV161007-162
MWA CONSULTANT:	David Williams M.Arbor.A
REPORT DATE:	12th October 2016

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1.0 Introduction

1.1 We are instructed by Mr James Craig to undertake a tree survey in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction- Recommendations'. The report is to support a planning application for development at the rear of 74 Dynham Road, London, NW6 2NR.

1.2 The proposed development consists of the construction of a single storey infill extension to the rear left-hand corner. The client has provided the following plans:

- Existing and proposed with elevations (PDF)
- Existing and proposed with elevations (DWG)

1.3 The site survey was undertaken on the 11th October 2016 and the following report is based upon the findings of that visit and the conditions found on that day.

1.4 We have not been provided with a digital file of the existing site and the proposed development.

1.5 Tree position was triangulated, where necessary, using a minimum of three reference points.

1.6 Components of Report

This report comprises the following elements:

- Baseline tree survey of trees that may be impacted by proposals
- Arboricultural Implication Assessment (AIA)
- Arboricultural Method Statement (AMS)
- Tree Protection Plan (TPP)

1.7 Technical Synopsis

We have recorded a single tree requiring material consideration in relation to the proposed development which can be successfully retained with a minimum of impact on the retained trees long-term welfare.

1.8 The principal matter of concern relates to the need to mitigate any impact on the trees root system and rooting environment to an acceptable degree and this can be achieved through the working methods and mitigation measures detailed in the AMS.

2.0 Scope & Objectives

2.1 This report has been commissioned by Mr James Craig and the scope of the report reflects his instructions.

2.2 The scope of this report is limited to an appraisal of the existing trees on (and/or adjoining) the site and identification of the implications of development on retained trees.

2.3 The brief is to appraise the trees in relation to the proposed development of the site in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

2.4 To prepare clear recommendations supported by relevant plans and data in order to facilitate consideration of the Arboricultural implications by the Local Planning Authority.

2.5 To consider the development proposals, identify areas where there are arboricultural issues and to recommend possible solutions.

2.6 To consider additional information supplied, to identify arboricultural issues arising from this information and to recommend possible solutions.

2.7 This report is not a Tree Risk Management Report or a Hazard Analysis Report and its use as such is invalid.

2.8 The trees have been assessed from ground level only. Assessment of condition is based on a visual tree assessment (VTA). No detailed inspection of the upper crown has been carried out. No decay detection equipment (destructive or non-destructive) has been used to further assess the condition of the trees, which is beyond the scope of the survey. Any dangerous trees requiring further assessment on safety grounds will be identified.

2.9 Due to the changing nature of trees and other site circumstances this report and any recommendations made are limited to a 5-year period. Any alteration to the application site or any development proposals could change the current circumstances and may invalidate this report and any recommendations made. Should this be the case this report will require revision to reflect the development Proposals.

2.10 Trees are dynamic structures that can never be guaranteed 100% safe; even those in good condition can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.

2.11 A lack of recommended work does not imply that a tree is safe and likewise it should not be implied that a tree will be made safe following the completion of any recommended work.

2.12 Tree dimensions were measured using a combination of a Trupulse 200 Laser Range Finder, a Leica Disto Laser Rangefinder and a Richter Diameter tape. All instruments were used in accordance with appropriate user guides.

2.13 No soil samples were taken and no soils analysis was undertaken.

2.14 Any legal description or information given to MWA Arboriculture Ltd is believed to be accurate.

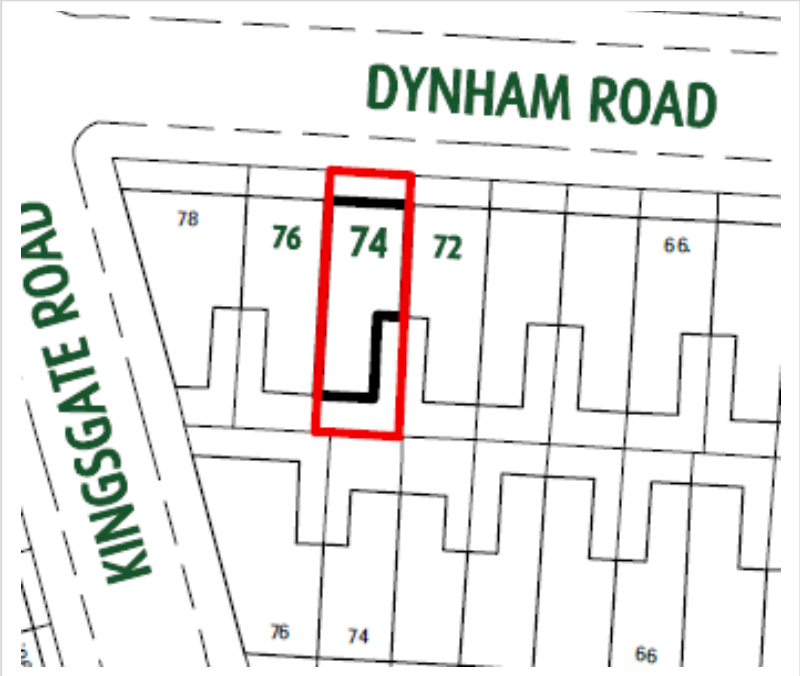
2.15 Where solutions to arboricultural problems are specified which require the usage of a third party product e.g. no dig roadway construction. No liability is assumed for the performance or suitability of the product and specialist advice as to the suitability or installation of the product should be sought from the manufacturer or other specialist.

2.16 No responsibility is assumed by MWA Arboriculture Ltd for legal matters that may arise from this report, and the consultant shall not be required to give testimony or to attend court unless additional contractual arrangements are made.

2.17 Any alteration or deletion from this report shall invalidate it as a whole.

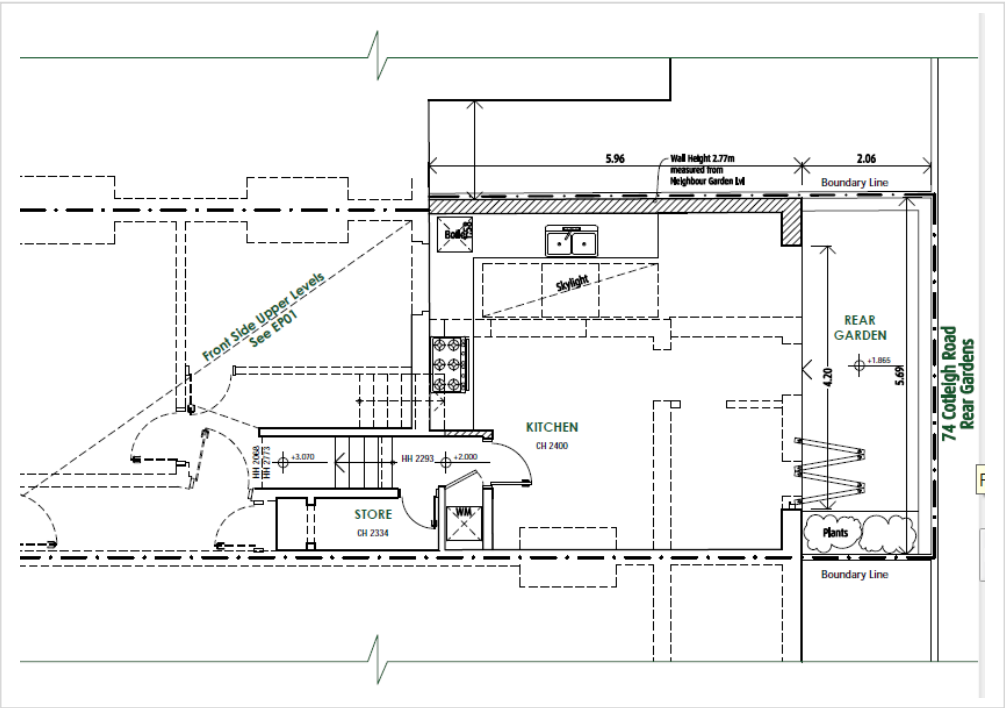
3.0 Site Description

3.1 The subject property comprises a two storey mid terraced dwelling which has been converted into self contained flats. The development location relates to the ground floor, garden flat.



4.0 Development Proposal

4.1 The proposed development consists of the construction of a single storey rear extension. See illustration below:



5.0 Tree Survey

5.1 The survey of the trees was carried out on the 11th October 2016. Tree data is recorded in Table 1 with locations indicated on plans attached to this report.

Table 1 – Tree Survey Schedule

Tree No.	Species	Ht (m)	Dia. @ 1.5m (mm)	No of stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	ER CY	Crown Ht	Age Class	Description & Recommendations	RPA (Radial)	BS Cat
T1	Yew	7.2	170 av	3	1.8	2.0	2.0	1.7	20+	3.0+	EM	Triple stemmed tree with a compact form; predominantly vertical scaffolds. Vigorous tree in good health. Retain and protect as per TPP/AMS	RPA: 3.0	**B1**

Headings and Abbreviations:

No.	Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species:	Common name
Height:	In metres, to half nearest metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.:	Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. MS = multi-stemmed, TS = twin-stemmed
Branch Spread:	Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Crown Height:	Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-N) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Age Class:	Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
ERCY:	Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
BS Cat::	Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA Radius (m):	Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
*** (Estimated Dimensions):**	Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

6.0 Arboricultural Impact Assessment

6.1 BS5837 (2012) requires that the root protection area is calculated for each of the retained trees on the development. The root protection area is the minimum area in m^2 which should be left undisturbed around each retained tree. The standard calculated RPA's and the protection zone radii are detailed in the Tree Survey Schedule (Table 1) above.

6.2 For single stem trees, the RPA has been calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods below has been used.

6.3 For trees with multiple stems the following rules apply.
a) For trees with two to five stems, the combined stem diameter has been calculated as follows:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \ldots + (\text{stem diameter 5})^2}$$

b) For trees with more than five stems, the combined stem diameter is calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

6.4 The RPA for each tree is plotted as a circle centred on the base of the stem.

6.5 The calculated RPA for each tree has been capped to 707 m^2.

6.6 Where pre-existing site conditions or other factors suggest that rooting has occurred asymmetrically, a polygon of equivalent area has been produced.

6.7 Where modifications to the shape of the RPA have been specified they reflect a soundly based arboricultural assessment of likely root distribution. Any deviation in the RPA from the original circular plot takes account of the following factors whilst still providing adequate protection for the root system:

a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
b) topography and drainage;
c) the soil type and structure;
d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.'

6.8 The proposed development does impede on the root protection areas of trees on the adjacent site; this encroachment involves the use of 10% (area) of the radial RPA of T1 for the installation of foundations supporting the proposed extension.

6.9 Threat from direct damage is addressed by virtue of the trees off-site position. The crown height of T1 on the west side is sufficient for no direct conflict to occur between the development and crown framework.

6.10 It is important to protect the ground within the RPA's from damage and compaction the as a result of vehicular and pedestrian movements during development and this will involve the installation of temporary ground protection as indicated on the TPP.

6.11 The removal of the existing concrete surface should be undertaken in accordance with the AMS to avoid unnecessary damage to the trees root system and rooting environment.

6.12 Excavations for the installation of the foundations, within the radial RPA of T1, should result in limited impact on the trees root system and whilst a proliferation of larger (>25.0mm diameter) roots is not expected, hand digging and controlled root pruning will ensure compliance with good practice. This element should be subject to arboricultural supervision.

6.13 Irrespective of our view that the impact will be limited, in order to safeguard the tree we advise that any excavation undertaken within the RPA is supervised by a competent arboriculturist and that any root pruning which way be necessary is undertaken in accordance with NJUG10.

6.14 Issues surrounding shading and the pressure for future tree works/removals are not judged to be significant due to the scale of development and use of skylight windows in the extension roof. The need for future pruning to alleviate direct nuisance (contact between the roof and tree) would be limited due to the slow growth rate of the species involved.

7.0 Potential incursions in to the RPA (Root Protection Area)

7.1 The proposed development will involve incursions into the RPA as detailed above and also potentially for access during the construction phase. Where it has been defined during the design stage, and shown on the tree protection plan, that vehicular or pedestrian access for the construction operation is required within the root protection area (RPA), the possible effects of construction activity will be addressed by a combination of barriers and ground protection.

7.2 Storage of materials, the site compound and welfare facilities should be set-up using a location outside the RPA at the front of the property.

8.0 Arboricultural Method Statement - PRELIMINARY

8.1 Arboricultural Method Statement – Demolition / Removal of existing surfaces

8.2 Where it is intended to undertake demolition or construction operations within the root protection area, precautions should be taken to maintain the condition and health of the root system and in particular to:

a) prevent physical damage to the roots during demolition or construction (such as by soil compaction or severing);

b) make provision for water and oxygen to reach the roots;

c) allow for the future growth of the root system;

d) preserve the soil structure at a suitable bulk density for root growth and function (in particular for soils of a high fines content).

8.3 Throughout the process of demolition or construction, including piling, the soil structure within the root protection area should be protected. The methods of protecting trees from damage during all phases of demolition and construction work have been specified within section 6 and the method statement.

8.4 All plant and vehicles engaged in demolition works will either operate outside the RPA, or will run on a temporary surface designed to protect the underlying soil structure. Where such ground protection is required, it will be installed prior to commencement of operations.

8.5 Should the level of dust build-up on trees become significant, the advice of an arboriculturist will be sought. If considered appropriate by the attending arboriculturist the affected trees will be hosed down immediately.

8.6 Where an existing hard surface is scheduled for removal, care will be taken not to disturb tree roots that may be present beneath it. Hand held tools or appropriate hand-held pneumatic driven machinery will be used to remove the existing surface. Tree roots exposed by such operations will be treated in accordance with details in 8.7.

8.7 Any excavations which have to be undertaken within the root protection area will be carried out carefully by hand, avoiding damage to the protective bark covering larger roots. Roots, whilst exposed, will be wrapped in dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Those roots smaller than 25mm in diameter may be pruned back, preferably to a side branch; using a proprietary cutting tool such as secateurs or a handsaw. Roots larger than 25mm in diameter will only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability. Prior to backfilling, any hessian wrapping will be removed and retained roots should be surrounded with sharp sand (builders' sand will not be used because of its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced. This material will be free of contaminants and other foreign objects potentially injurious to tree roots.

8.8 Arboricultural Method Statement - Installation of Services (Underground and above ground services)

8.9 Trenching for the installation of underground services severs any roots present and may change the local soil hydrology in a way that adversely affects the health of the tree. For this reason particular care should be taken in the routeing and methods of installation of all underground services.

8.10 At all times where services are to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with an arboriculturist. Such plans should also show the levels and access space needed for installing the services and be accompanied by arboricultural method statements (AMS).

8.11 Arboricultural Method Statement – Installation of foundations within the RPA

8.12 Where the foundations encroach into the RPA of T1, a hand dug trench (500mm deep x 500mm width) along the line of the outer footprint of the new extension (see TPP) should be opened for inspection by the project arboriculturalist and foundation engineer (see image below as an example).

8.13 Roots smaller than 25mm in diameter may be pruned back, preferably to a side branch; using a proprietary cutting tool such as secateurs or a handsaw. Roots larger than 25mm in diameter will only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability.

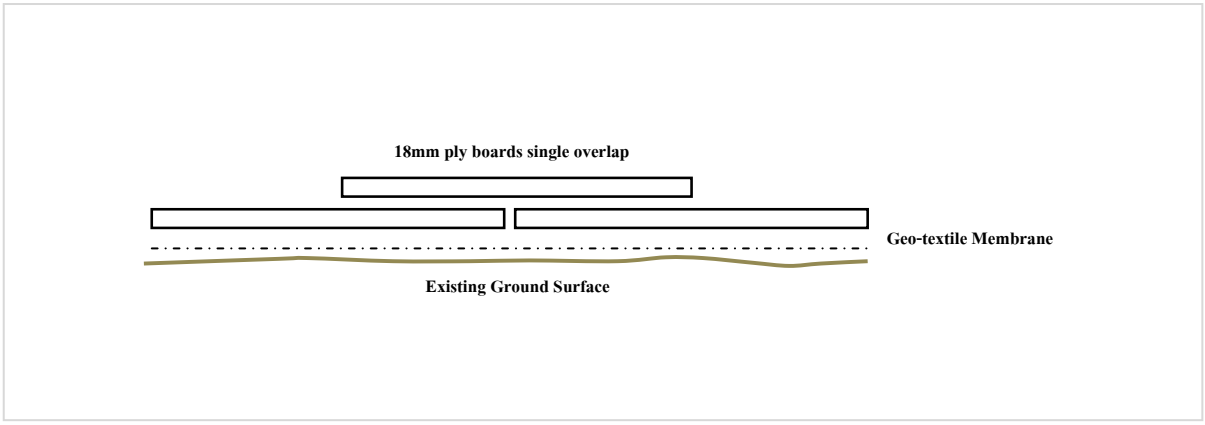
8.14 The foundation engineer should ensure foundation design is adequate to protect the extension from clay-shrinkage related ground movement exacerbated by the drying action of tree roots.

Example of hand-dug trench

8.15 Arboricultural Method Statement – Ground Protection

8.16 Where it has been defined during the design stage, and shown on the tree protection plan, that pedestrian access for the construction operation is required within the root protection area (RPA), the possible effects of construction activity will be addressed by ground protection (refer to MWA TPP 001).

8.17 For movements within the RPA, a single layer/overlap of 18mm thick ply boards should overlay a geo textile membrane for the duration of the development. See illustration below:



8.18 Arboricultural Method Statement – Sequencing of works & site supervision

8.19 Works are to be sequenced as follows:

- Install protective ground protection after concrete removed as per AMS
- Install compound (front)
- Undertake pre foundation excavations and supervised root pruning
- Site monitoring if required by LPA
- Construction works – practical completion
- Remove ground protection

9.0 Conclusion and recommendations

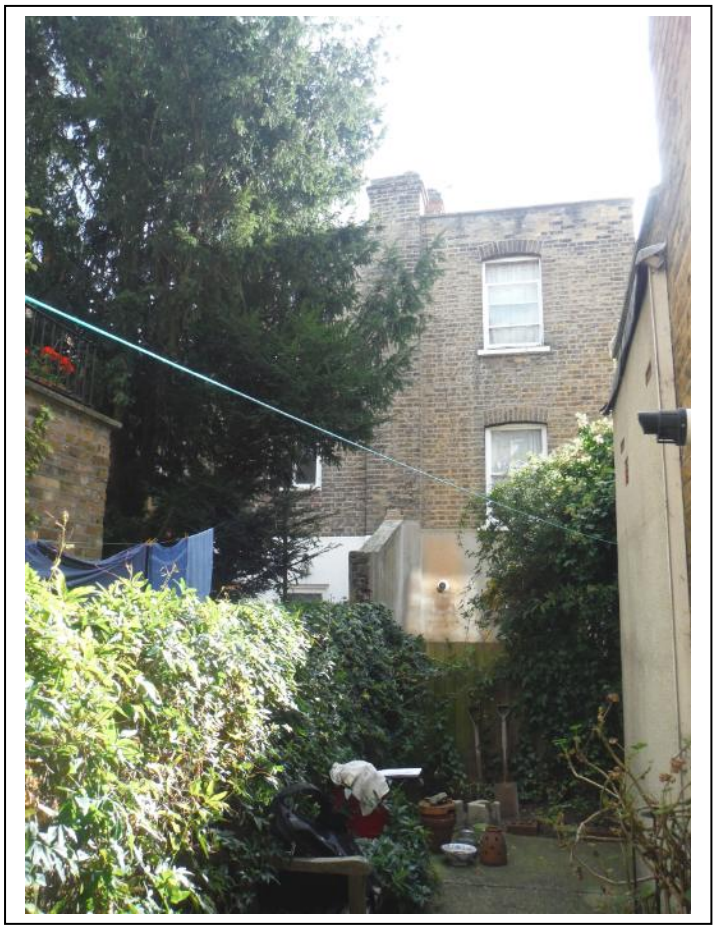
9.1 There is a single within the site which falls within the constraints of BS5837 (2012).

9.2 The impact of the proposed development has been assessed and in our professional opinion provided that the works take place in accordance with the method statements specified in this report the works will not be detrimental to the retained tree.

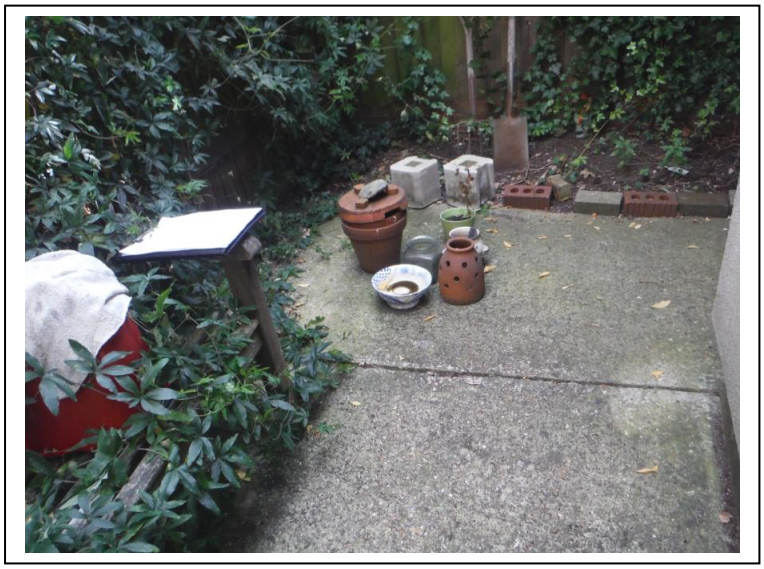
9.3 All technical issues relating to arboriculture should be addressed to MWA Arboriculture Ltd in the first instance. MWA Arboriculture Ltd will liaise between the Local Planning Authority and any interested parties.

9.4 It is suggested that the development proceeds in accordance with the above recommendations with the use of condition(s) to ensure the appropriate methods of working are agreed and any necessary site supervision/enabling works are correctly sequenced prior to the commencement of construction work.

10.0 Images



View of T1 and location of extension



View of existing concrete path