Greengage

48 Churchway, Moorgarth Living
BS5837 Tree Survey and Arboricultural Impact Assessment, September 2018

QA

48 Churchway – BS5837 Tree Survey and Arboricultural Impact Assessment

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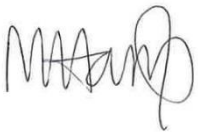
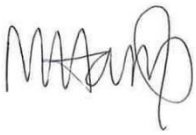
Signature:		
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CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd was commissioned by Moorgarth Living to undertake an appraisal of trees, hedges and vegetation at a site located at 48 Churchway in Camden, London, to the *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*[1].

1.2 This document is a report of this survey and has been produced to support a planning submission for the site which seeks for an infill office building, roof replacement and internal refurbishment.

1.3 The purpose of this report is to provide an assessment of the arboricultural value of the trees based on their current quality and to provide recommendations, to help inform any initial design and site layout considerations.

1.4 A visit was made to the site on 6th June 2018 to survey trees, hedges and vegetation following guidance in the British Standard. The crowns and stems were inspected from the ground using the 'Visual Tree Assessment' (VTA) method; no invasive techniques were used at this stage.

1.5 During the survey, two individual trees adjacent to the site identified and have been graded as one Category B and one Category C specimen.

1.6 An assessment of the potential impacts of the proposed development and recommendations to help avoid, minimise or compensate for these impacts is outlined within this report.

1.7 Through this assessment is has been confirmed that both trees can be retained and there are no arboricultural constraints to the proposed development.

2.0 INTRODUCTION

OVERVIEW

2.1 Greengage was commissioned by Moorgarth Living to undertake a BS5837 tree survey and prepare an Arboricultural Impact Assessment (AIA) report for a site located off Churchway in the London Borough of Camden.

2.2 This document has been produced to support a planning application for construction of an office infill and other ancillary works.

2.3 A site visit was made by Greengage on 6th June 2018 to survey all trees within and adjacent to the site following the approach set out in BS5837.

2.4 As required by the British Standard, an Arboricultural Impact Assessment has been undertaken to evaluate the constraints to the development from the existing trees both on and adjacent to the site using information gained from the BS5837 Tree Survey.

2.5 Full details of the surveyed trees can be found in the Tree Schedule (Appendix 2). The Tree Constraints Plan (Appendix 3) presents the locations, crown spreads, root protection areas (RPAs) and BS Categories of the surveyed trees against proposed layout.

SITE DESCRIPTION

2.6 The assessment site covers an area of approximately 0.08 hectares (ha) and is centred on National Grid Reference TQ297827.

2.7 The assessment site comprises an elongated, single storey and basement building flanked by Seymour House and Winsham House on Churchway. Buildings and hardstanding entirely cover the site and there are no natural habitats or vegetation within the application site boundary. A two mature sweetgum trees are immediately adjacent to the site, located within neighbouring courtyards.

2.8 The site is located in a central London location approximately 150m from Euston Train Station in Camden. Open green space is contained within small urban pocket parks. The Regent's Park is approximately 1km west and the River Thames is approximately 2.3km south.

PROPOSED DEVELOPMENT AND PLANNING CONTEXT

2.9 This report has been prepared to support a detailed planning application for the site. The proposed works are to 48 Churchway and include the demolition of the 'shed' building and the removal of the roof of the 'link' section to 41-43 Chalton Street. The development will provide internal fit out plus 4 storeys of new office space.

RELEVANT PLANNING POLICY

Camden Local Plan 2017[2]

Policy A3 Biodiversity

"Trees and vegetation - The Council will protect, and seek to secure additional, trees and vegetation. We will:

j. Resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;

k. Require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;

l. Expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;

m. Expect developments to incorporate additional trees and vegetation wherever possible."

3.0 TREE SURVEY METHODOLOGY

SITE VISIT

3.1 A site survey was undertaken on 6th June 2018 to survey trees, hedges and vegetation following guidance in the British Standard.

3.2 The crowns and stems were inspected from the ground using the 'Visual Tree Assessment (VTA)' method; no invasive techniques were used at this stage.

3.3 The survey followed the methodology outlined in *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*[3].

3.4 The site visit was undertaken during warm and dry summer weather conditions with trees in the full leaf stage. Full details on the methodology can be found at Appendix 1.

LIMITATIONS

3.5 This report includes information on only the trees that were inspected and the condition they were observed in at the time of survey. The condition of trees can change, and as such any findings from this report should be held valid to inform for purposes of development for no longer than 12 months from the survey date. No guarantee can be given for the structural integrity of any trees on site as a full hazard assessment has not been made.

3.6 There were no significant constraints to the assessment; all areas of the site were fully accessible to survey. Any constraints over winter identification techniques are not applicable in this instance.

4.0 RESULTS OF SURVEY

4.1 During the survey, two individual trees were identified within the scope of this report. One tree is graded as Category B (T1) and the other is graded as Category C (T2). Both T1 and T2 are located offsite; there are no trees within the application site boundary.

4.2 A summary of the existing trees is given below. Further details can be found in the Tree Schedule (Appendix 2) and Tree Constraints Plan (Appendix 3). Additional photos are given at Appendix 4.

4.3 T1 is a mature Sweet Gum (*Liquidambar styraciflua*) specimen planted within the rear courtyard of Seymour House, immediately south of the site. T1 is a good quality tree with no major defects. The tree is planted within a small soil bed and surrounded by tarmac hardstanding. Minor defects include exposed roots and stem bifurcation at approximately 2m which could affect structural integrity as the tree matures. Overall, T1 is graded as Category B. See Figure 4.1 below.

Figure 4.1 T1 Sweet Gum in Seymour House courtyard

4.4 T2 is also a Sweet Gum specimen and is planted within the rear courtyard of Winsham House to the north of the site. This tree has major deadwood throughout and has undergone a reduction in the last 12 months to reduce conflict with the adjacent buildings. T2 appears to be in a state of stress possibly owing to lack of water availability as the tree is planted within hardstanding with very little permeable ground. Overall, T2 is assessed as having a reduced remaining useful life expectancy and has been graded as Category C. See Figure 4.2 below.

4.5 Further site photos can be found at Appendix 4.

Figure 4.2 T2 Sweet Gum in Winsham House courtyard

TREE LEGAL PROTECTION

4.6 A review of Camden Borough Council's Tree Preservation Order (TPO) data (available from data.gov.uk published November 2014) has confirmed there are no protected trees within or adjacent to the site.

4.7 Furthermore, the area under assessment is not within a local Conservation Area that would afford additional protection to the trees. Bloomsbury Conservation Area is located approximately 150m south of the site.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

INTRODUCTION

5.1 The purpose of this Arboricultural Impact Assessment (AIA) is to assess the potential impacts to existing trees from the proposed development, and to highlight the need for the retention or removal of specific trees during construction.

5.2 Works associated with development of this type can damage trees, threatening the survival of those that are to be retained. The following actions can have negative impacts upon tree health:

- Soil compaction;
- Root damage (e.g. severance);
- Soil coverage with impermeable material;
- Alterations in ground level;
- Leaks and spillages from stored materials; and
- Vehicle and heavy plant collision.

5.3 As such, where possible, the RPAs and canopies that are defined in Appendix 3 should be protected and considered throughout works to prevent risks to the health of the trees.

SITE LAYOUT

5.4 Proposals and existing drawings provided for the assessment of the potential constraints that exist include:

- Existing layouts package (GTA_17009_Churchway_Existing Drawings); and
- Proposed layouts package (GTA_17009_Churchway_Proposed Drawings).

5.5 The proposed works are to 48 Churchway and include the demolition of the 'shed' building, and the removal of the roof of the 'link' section to 41-43 Chalton Street. The development will provide internal fit out plus 4 storeys of new office space.

5.6 The trees in adjacent courtyards (T1 and T2) do not overhang the site and there are no above ground constraints in terms of conflict with the canopy for the proposed build. Additionally, as the canopies are at least 0.5m from the site boundary, it is not anticipated that any facilitation pruning works would be required to allow construction working space. However, care should be taken when erecting scaffolding to ensure any accidental damage to limbs is avoided. A single site visit by an appointed Arboricultural clerk of Works (ACoW) is recommended to sign off on the scaffolding installation at the commencement of site activities.

5.7 There appears to be a small predicted Root Protection Area (RPA) incursion of the tree within Seymour House with the RPA extending to approx. 6.5m and the tree being 5m from the boundary. However, the existing basement of the building would have prevented root growth in this area and no impacts are predicted. The trees therefore pose no constraint to development.

5.8 The TCP can be found at Appendix 3.

PROPOSED TREE REMOVALS

5.9 None proposed.

PROPOSED TREE WORKS

5.10 No requirement for facilitation pruning is anticipated.

SUMMARY

5.11 Sweetgum trees T1 and T2 in adjacent courtyards pose no constraint to development and can be fully retained with no requirement for specific tree protection measures. Scaffolding along the boundary lines should be installed sensitively to ensure any accidental damage to the tree canopies is avoided; an ACoW should attend site to sign off the scaffolding and advise the Site Manager and construction workers as necessary.

6.0 SUMMARY AND CONCLUSIONS

6.1 Greengage was commissioned by Moorgarth Living to undertake a BS5837 tree survey and prepare a report relating to the arboricultural impact of the proposed development located at 48 Churchway in Camden.

6.2 Greengage undertook the site visit on 6th June 2018 to survey the trees on and adjacent to the site. The survey identified two individual trees T1 and T2 graded as Category B and Category C respectively.

6.3 The canopy spreads of both trees are contained within the courtyards adjacent to the site and there are no overhanging branches that would pose an above ground constraint to the development. Similarly, the RPAs have been assessed as limited to the site boundary owing to the existing basement layout. Accordingly, there are no below ground constraints relating to root protection. No impacts of development upon the adjacent trees are therefore predicted and there is no formal requirement for mitigation such as tree protection measures.

6.4 Whilst there are no opportunities for new tree planting, a positive contribution to local amenity will be delivered through incorporation of green infrastructure elements in line with the Local Plan.

APPENDIX 1: TREE SURVEY METHODOLOGY

Trees, tree groups and woodlands have been considered following evaluation into one of four categories (U, A, B, C) based on tree quality as outlined in British Standard 5837 (2012) which has been followed. Categorisation of trees, following the British Standard, gives an indication as to the trees' importance in relation to the site and the local landscape and also, the overall value and quality of the existing tree stock on site. This allows for informed decisions to be made 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. In the categories A, B, C which collectively deal with trees that should be a material consideration in the development process, there are three sub-categories which are intended to reflect arboricultural, landscape and cultural values respectively. Category U trees are those which would be lost in the short-term for reasons connected with their poor physiological or structural condition. They are, for this reason, not usually considered in the planning process.

In assigning trees to the A, B or C categories the presence of any serious disease or tree related hazards are 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, even if they are otherwise of considerable value.

Category (A) – trees whose retention is most desirable and is 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, 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 (e.g. avenues or other arboricultural features assessed as groups); and
- Trees or groups or woodlands of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B) – are 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) – are trees that could be retained and 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 150mm 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 for removal are those trees 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 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 trees or very low quality trees suppressing adjacent trees of better quality.

Species has been recorded by common name and recorded as such in the Arboricultural Data Tables in Appendix 2. Height has been estimated in meter and stem diameters have been measured at 1.5 metres above ground level and recorded in millimetres. Crown spreads have been measured in half meters and taken to the point of greatest spread unless the crown has presented a pronounced asymmetrical form and therefore measurements have been taken for the four cardinal points. The measurements have always been considered in the following sequence, North, East, South, and West, and therefore appear as such within the Arboricultural Data Tables.

In the assessment particular consideration has been given to the following when deciding the most appropriate British Standard Category and Sub-Category allocation:

a. the health, vigour and condition of each tree;

b. the presence of any structural defects in each tree and its life expectancy;

c. the size and form of each tree and its suitability within the context of the proposed scheme; and

d. 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 up to five years of age;
- SM: Semi-mature, trees less than 1/3 life expectancy;
- EM: Early mature, trees 1/3 – 2/3 life expectancy;
- M: Mature trees over 2/3 life expectancy;
- OM: Over mature – declining or moribund trees of low vigour; and
- V: Veteran - Characteristics have been noted where a tree exhibits certain characteristic features of veteran trees.

The overall condition of the tree, or group of trees, has been referred to as one of the following. A more detailed description of condition has been noted in the Tree Schedule and discussed in the Tree Assessment Report.

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

Major defects or diseases and relevant observations have also been recorded under Structural Condition. The assessment for structural condition has included inspection of the following defects:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay;
- Soil cracks and any heaving of the soil around the base indicating possible root plate movement;
- Any abrupt bends in branches and limbs resulting from past pruning, as it may be an indication of internal weakness and decay;
- Tight or weak 'V' shaped unions and co-dominant stems;

- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994);
- Cavities as a result of limb losses or previous pruning;
- Broken branches;
- Storm damage;
- Canker formations;
- Loose bark;
- Damage to roots;
- Basal, stem or branch / limb cavities;
- Crown die-back;
- Abnormal foliage size and colour;
- Any changes to the timing of normal leaf flush and leaf fall patterns; and
- Other pathological diseases affecting any part of the tree.
- 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 5cm in diameter;
- Minor dead wood 5cm to 10cm in diameter; and
- Major dead wood 10cm in diameter and above.

The survey was completed from ground level only, aerial inspection of trees was not undertaken. Investigations as to the internal condition of a tree have not been undertaken. Further investigations of this type can be made and have been recommended where it has been considered necessary, within the report although these investigations are beyond the scope of this report.

Evaluation of the trees condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

The individual positions of trees and groups of trees recorded in the Arboricultural Data Tables have been shown on the Tree Constraints Plan, in Appendix 3. The positions of trees are based on a topographical / land survey supplied by the development and client in dwg. format for the purpose of plotting the trees.

The Root Protection Areas (RPA) to be required by the individual and groups of trees are indicated by the Tree Constraints element of the above plans. The Root Protection Areas are formulated as described below.

Below ground constraints to future development is represented by the area surrounding the tree that contains sufficient rooting volume to ensure survival of the tree, which need protecting in order for the tree to be incorporated into any future scheme, without adverse harm to the tree or structural integrity of buildings. This is referred to as the RPA and is shown as a circle of a given radius.

The circle may be modified in shape to maintain a similar total area depending on the presence of surrounding obstacles. Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so would automatically exceed the RPA's required for many of the individual specimens within the group. A RPA is equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising less than 1.5 meters above ground level.

APPENDIX 2: TREE SCHEDULE

Tree ref	Species	Tree Height (m)	DBH (mm)	RPA radius	Canopy Spread (m)				Crown Clearance (m)	Age Class	Condition		Life Exp	Category	Notes
					N	E	S	W			P	S			
T1	Sweet Gum (*Liquidambar styraciflua*)	18	540	6.48	5.5	5.5	5	5	3	M	G	G	40+	B	Good quality tree in secluded location - only visible from internal courtyard. Twin stem from 2.5m but otherwise no defects. Space to grow. No significant historical management but none required.
T2	Sweet Gum (*Liquidambar styraciflua*)	18	500	6.00	4.5	6	5.5	4	4	M	P	F	40+	C	Fair/poor quality tree with a number of defects. Suffering from stress as there is no permeable rooting zone. Significant deadwood. Recent pruning works have reduced the canopy. Roots lifting tarmac. Mature and of good landscape value but reduced remaining life expectancy.
END OF RECORDS															

Y: Young
SM: Semi mature
EM: Early mature
M: Mature
OM: Over Mature

P: Physiological
S: Structural
G: Good
F: Fair
P: Poor
D: Dead/Dying

APPENDIX 3: TREE CONSTRAINTS PLAN

Ref. T2Sweet Gum (Liquidambar styraciflua)

Ref. T1Sweet Gum (Liquidambar styraciflua)

CHURCHWAY

1:200

4m 0 4m 8m 12m 16m 20m

N

Tree Constraints Plan showing existing layout against BS5837:2012 tree categories & Root Protection Areas.

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or a stem diameter below 150mm.

Category U
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

No.	Revision/Issue	Date
1	551090nfAug18DV01_TCP	01/08/18

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Project Name and Address
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Project
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Sheet
1 of 1

Date
01/08/2018

Scale
1 to 200 at A3

APPENDIX 4: SITE PHOTOS

Photograph 1 – T1 tree pit surrounded by tarmac hardstanding

Photograph 2 – T1 stem bifurcation

Photograph 3 – boundary wall between site and Seymour House

Photograph 4 – T2 canopy spread near to site boundary

Photograph 5 – T2 roots lifting tarmac. No permeable rooting zone.

REFERENCES

[1] British Standards Institution. (2012). 5837: *Trees in relation to design, demolition and construction - Recommendations*. London: BSI.

[2] Camden Borough Council (2017) Camden Local Plan 2017

[3] British Standards Institution. (2012). 5837: Trees in relation to design, demolition and construction - Recommendations. London: BSI.