Arboricultural Survey

Acorn House
314–320 Grays Inn Road
London
WC1X 8DP

17th March 2020

PJC ref: 5493/20/01 Rev 01

This report has been prepared by

PJC Consultancy Ltd

on behalf of

Access Self Storage

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1 INTRODUCTION

1.1 **Instruction:** PJC Consultancy has been instructed by Access Self Storage to provide an initial arboricultural survey of Acorn House, 314–320 Grays Inn Road, London. The survey is to be undertaken in accordance with BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.2 **Survey objectives:** This survey has been undertaken with the following objectives:

- To record a schedule of significant trees (dimensions and locations) situated at the prospective development site.
- To assess the quality and value of the existing tree stock in terms of arboricultural, landscape, historical/conservation, or public amenity value.
- To provide information relating to planning constraints that may restrict works to trees at the site.
- To provide an assessment of the material constraints posed by the existing tree stock on potential future developments at the site.
- To aid the design process, ensuring prospective developments integrate appropriately with the existing tree stock, to maximise the potential of the proposed development site.

1.3 **Scope of this report:** This report is concerned with all significant trees and arboricultural features located within the site boundary. Additionally, trees located around the curtilage of the site have also been surveyed when they are considered likely to have the potential to impact on the development (in relation to root and crown protection or foundation design).

1.4 **Contents of report:** This report includes the following:

- A summary of the existing tree stock and notable arboricultural features.
- Tree Constraints Plan in accordance with BS5837: 2012.
- Tree Survey Schedule containing the relevant measurements and information for each tree or tree group as required in BS5837: 2012.

1.5 **Documents and information provided:** The following documents were provided to allow completion of this report:

- 36294_01_P – Topographical Survey *(Greenhatch Group)*

2 SITE VISIT AND SURVEY METHODOLOGY

2.1 **Site visit:** A site visit was carried out on Friday 6th March 2020. The weather conditions at the time were fine and dry and the visibility was considered adequate for completing a visual tree inspection from ground level.

2.2 **Tree survey information:** The following information was recorded in the Tree Survey Schedule for each individual tree (average dimensions are recorded for groups):

- Tree reference number. (T=tree, G=group, H=hedgerow, W=woodland block).
- Species (common and scientific name).
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for multi-stemmed trees with six or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth (for individual trees only).
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree(s) including any notable features).
- Preliminary management recommendations (prescriptions for tree management processes based on the current land use and not related to the prospective development).
- Tree categorisation (see below).
- Root protection area (m^2).
- Root protection radius (m).

2.3 **Tree categorisation:** The condition and value of each tree was evaluated based on the current land use. Each tree or tree group has been awarded either category A, B, C or U and a sub category of either 1,2 or 3 or a combination of the sub categories.

2.4 Tree categorisation summary:

- A – Trees of good condition and high arboricultural, landscape or conservation value. Must have a potential life span in excess of forty years.
- B – Trees of moderate condition, with minor defects or sub-optimal form but are still of modest arboricultural, landscape or conservation value. Must have a potential life span in excess of twenty years.
- C – Unremarkable trees of poor condition or form with limited arboricultural, landscape or conservation value, or trees with a stem diameter under 150mm. Must have a potential life span in excess of ten years.
- U – Trees of such impaired condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years. These trees do not need to be removed if they are not dangerous and do not conflict with the proposed development, but should not be considered a constraint to development.

2.5 Tree sub categorisation summary:

- 1 – Trees have mainly arboricultural value, e.g. trees of good condition, form and vitality or rare tree species.
- 2 – Trees have mainly landscape value, e.g. trees of landscape prominence, that serve to screen unsightly views or that are required for privacy. Also trees present in groups that attain higher collective rating that they would as individuals.
- 3 – Trees with mainly cultural value including conservation, e.g. commemorative trees, trees of historical significance or veteran trees.

2.6 Each tree can only be categorised as A, B or C but may comply with more than one sub category. A cascade chart further explaining how tree categorisation is decided is included in Appendix 3.

2.7 **Root protection areas:** A root protection area represents the minimum area of root growth required to support a tree. It is a standardised calculation based on the stem diameter(s) measured at 1.5m and is not necessarily representative of the actual root spread or total rooting area. The formulas used to calculate root protection areas are shown below:

Table 1: Root protection area formulas

For single stemmed trees, root protection areas are calculated as follows:

$$\text{Root protection area } (m^2) = \left(\frac{\text{stem diameter (mm) x 12}}{1000}\right)^2 \times \pi$$

For trees with two to five stems, a combined stem diameter is calculated as follows:

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

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

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

2.8 The root protection areas are plotted onto the Tree Constraints Plan in Appendix 1, and recorded in the Tree Survey Schedule in Appendix 2. These are represented as a circle on the plan (unless significant rooting constraints are present), and are colour coded depending on the category the tree has been awarded. Where existing site conditions/features are present that are deemed likely to have affected the root morphology, the root protection areas have represented as a polygon of equivalent area.

2.9 The proposed layout should avoid level changes or the placement of new buildings and areas of hard surfacing within the root protection areas of retained trees. In certain situations, engineered solutions are available to allow construction within the root protection areas however further input from an arboriculturist should be sought regarding their site-specific viability before these methods are relied upon.

2.10 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally as well as the absorption of moisture and nutrients from the soil. They also act as storage and transport for water and nutrients.

2.11 Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above the growing medium, (i.e. from porous to non-porous), can alter the resources available to the tree, which in turn can lead to its decline.

2.12 The majority of root growth is usually found within the top 600mm of soil. As such, even shallow disturbance within root protection areas can potentially have a significant impact on the trees.

2.13 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during any proposed works. Any construction works within a root protection area required for the proposed layout must be justifiable within an arboricultural impact assessment.

2.14 **Limitations of survey:** The survey methodology was restricted to a visual tree assessment from ground level. No tree climbing or ground investigation was carried out for this report. Where existing site constraints are present such as ivy covered trees, a very dense under-storey, or where trees are located on third party land to which access was not granted, tree dimensions were estimated by eye as accurately as possible.

2.15 This survey represents a preliminary overview of the condition and value trees at the site. It is not a detailed assessment of any individual tree and although preliminary management recommendations are included, this report will not be sufficient to be used as a detailed condition and safety survey.

2.16 The information and measurements in this report are representative of the date of the site visit. The tree survey data will need to be updated to reflect tree growth and changes in the condition of trees after prolonged periods.

2.17 A topographical survey with accurate tree locations was not made available prior to completion of the arboricultural survey. Tree locations have been determined by eye to the best of the surveyors ability using fixed features present a the site. Subsequently tree locations shown on the Tree Constraints Plan in Appendix 1 are considered approximate.

3 SITE DETAILS AND SURVEY FINDINGS

3.1 **Site location:** The site is situated to the south of Swinton Street, to the east of Grays Inn Road, to the north of Acton Street, approximately 500m south-east of Kings Cross train station and more broadly within the London Borough of Camden. It has a central OS national grid reference of TQ 30572 82736. The surrounding land use is comprised of multi-storey, terrace properties of predominantly commercial use on all aspects. The location of the site within its environs is shown in figure 1.

Figure 1: Location of Site and Environs (Map data: © 2020 Google)

3.2 **Site layout:** The site comprises of a multi-storey commercial building currently forming commercial offices. Public highways and a mixture of residential and commercial properties surround the site on all aspects.

3.3 **Appraisal of tree stock:** Trees are located exclusively within the adjacent pedestrian footways to the north, west and south of the building. A total of seven trees were surveyed and recorded on the Tree Survey Schedule in Appendix 2. These include four category A trees and three category B trees,

3.4 London plane T1 is located to the north of Acorn House, within the Swinton Street pedestrian footway. Due to the trees close proximity to the building, its crown has been subject of cyclical pollard crown management. Based on the size of folia growth observed during the survey, it is predicted that reduction works were carried out approximately four years ago. The crown is now contacting the buildings northern elevation and therefore re-pollarding should be considered. T1 has been awarded the retention category A, as it appears healthy and vigorous with no visible evidence of defect observed during the survey. In addition, T1 forms a continuation of a larger avenue of London plane that runs along Swinton Street and is subsequently considered of intrinsic landscape importance.

3.5 Typical for mature London plane located in a densely populated urban setting, T2, T4, and T5 are all considered to be of high amenity value and vital landscape importance. All three trees appeared to be healthy and vigorous with no visible defect observed that would

suggest a life expectancy of less than forty years. This has led to all three trees being awarded the retention category A.

3.6 The root protection area of T1, T2, T3, T4 and T5 have been offset due to the presence of building foundations, which is considered to be a significant constraint to root growth. However, due to the trees urban setting, it is possible that root growth will be found beyond the indicated areas. Subsequently, sympathetic methodologies should be adopted during any future ground works that occur within the footways and road surface adjacent to Acorn House.

3.7 Measurements and further information for each tree can be viewed in the Tree Survey Schedule in Appendix 2.

3.8 **Statutory tree protection:** A representative from Camden Borough Council's Tree Section was unavailable on the date of this report to comment on tree protection statutes at the site. A formal request has been made for information relating to tree protection at the site and this report will be updated once the information has been provided by the Local Authority.

3.9 Any persons proposing to undertake tree works should check the status of the trees with the local authority, and gain the necessary consent before the works are undertaken. Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

4 RECOMMENATIONS

4.1 **Arboricultural input to planning application:** To comply with BS5837: 2012, an arboricultural impact assessment should be produced when the proposed layout has been fixed. The arboricultural impact assessment should include a schedule of trees to be retained or removed as well as access facilitation pruning required to enable the construction works. It should also evaluate the likely effects of the construction works on retained trees including post development pressures and provide recommendations on mitigation measures to be implemented.

4.2 It is recommended that input is sought from the project arboriculturist into the proposed layout before it is fixed. This will help ensure the proposed layout integrates well with the retained tree stock, and will allow potential areas of conflict that may not be identified by non-arboricultural professionals to be rectified whilst the layout is being developed.

4.3 The arboricultural impact assessment should be accompanied by an arboricultural method statement and a dimensioned Tree Protection Plan to show how retained trees will be protected during the construction period.

4.4 **Arboricultural considerations for proposed layout:** The proposed layout should take into account the following considerations related to trees:

- The proposed layout should seek to retain higher quality trees, particularly those that cannot easily be replaced. Where tree removal is necessary to facilitate the wider regeneration benefits associated with development, a tree replacement strategy could be implemented to mitigate tree loss. The loss of prominent or high quality trees, or net loss in tree cover within a development site will not be looked on favourably when determining a planning application.
- The proposed layout should take into account the root protection areas of retained trees. These should be left free of construction activities including hard landscaping unless the project arboriculturist confirms engineered solutions or sympathetic construction methodology will be a viable option to mitigate the encroachment.
- The proposed layout should take into account the shade cast by trees. Over-shading of gardens and buildings (notably habitable rooms) can result in future pressures to prune or remove additional trees post development and will be a material consideration for the local authority when determining a planning application.
- The proposed layout should also take into account other common potential nuisances resulting from trees including nuisance caused by leaf/fruit drop or honeydew drip (particularly onto footpaths, parking areas or roof guttering) and an over-bearing presence of large trees.
- Allowance should be made for future canopy growth of both existing and newly planted trees. Trees growing in areas of limited space may require regular future pruning works. The suitability of different species for regular crown reductions, the effect on their amenity value and the cost of future tree works (as well as who would be responsible for undertaking the works) should be considered.

4.5 The final design should show service locations and their routing. These are often not specified for outline planning applications, however their position has the potential to have a significant impact on retained trees and therefore should be noted in the detailed

arboricultural method statement that accompanies full planning permission. New utilities should be located outside of the trees root protection areas where they are underground and outside of the anticipated area of mature crown spread where above ground. Sympathetic methodology to enable the installation of services within root protection areas (in certain instances) is available, however there will always be a potential arboricultural impact and arboricultural advice must be sought regarding the suitability of these methods before they are relied upon. If it is achievable the root protection areas should always be avoided.

4.6 If further tree planting occurs within the development site, consideration should be given to species selection (in relation to form and potential size) and planting locations to ensure their successful integration into the new development. Recommendations for mitigation tree planting may be included in the arboricultural impact assessment, or a more thorough landscaping strategy may be provided by a landscape designer/architect.

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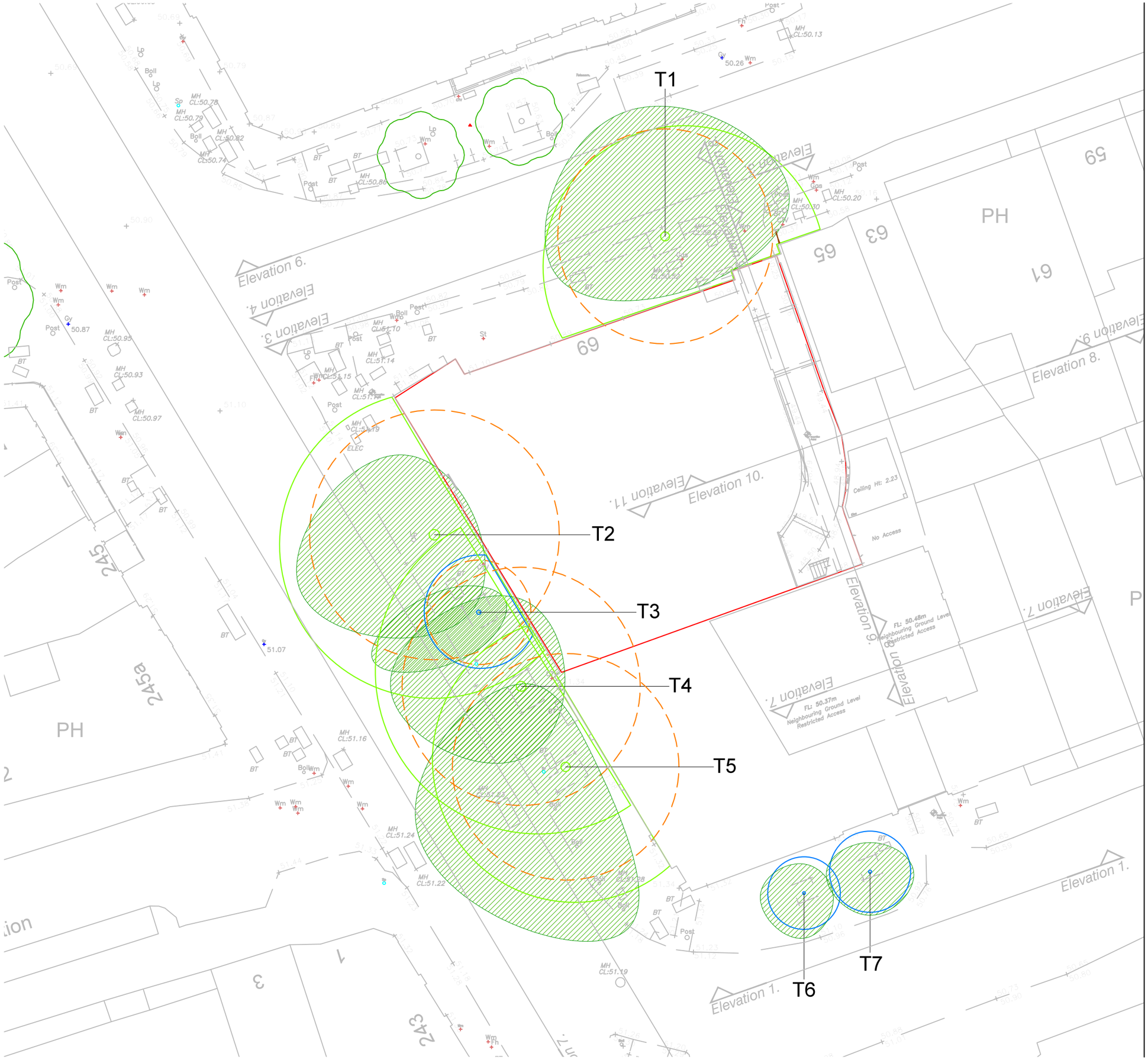
APPENDIX 1

Tree Constraints Plan



Key:

- Root protection area of category A* tree *(based on rooting constraints)*
- Root protection area of category B* tree *(based on rooting constraints)*
- Root protection area of category C* tree *(based on rooting constraints)*
- Root protection area of category U* tree *(based on rooting constraints)*
- Traditional root protection area
- Tree canopy
- Survey area boundary
- Topographical Survey

* Tree categorised in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction - Recommendations*'.

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. PJC/5493/20/01 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: PJC/5493/20/A **Rev:** 01 **Sheet number:** 1 of 1

Client and site:
Access Self Storage
Acorn House
314-320 Grays Inn Road
London
WC1X 8DP

Drawing title: Tree Constraints Plan

Date drawn: 17/03/2020

Scale: 1:250 at A3

Drawn by: LW **Checked by:** PD

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APPENDIX 2

Tree Survey Schedule

Survey Date: Friday 6th March 2020

Tree Survey Schedule

Site: Acorn House, 314-320 Grays Inn Road, London. WC1X 8DP.

Surveyor: Luke White *FdSc Arboriculture M.Arbor.A*

Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments and Preliminary Management Recommendations	Category grading	Root Protection Area (m^2)	Root Protection Radius (m)
T1. pa	London plane *(Platanus x acerifolia)*	16	620	N: 9 E: 9 S: 4 W: 8	Crown: 4 average Branch: 6 east	Mature	Good	Good	Located within footway adjacent to site. Comprised of a single stem supporting a well formed crown structure. Crown has been historically subject to cyclical pollard management. No remedial works required at time of survey.	A1+2	174.1	7.4
T2. pa	London plane *(Platanus x acerifolia)*	18	720	N: 6 E: 3 S: 6 W: 10	Crown: 7 average Branch: 7 west	Mature	Good	Fair	Located within footway adjacent to site. Comprised of a single stem supporting a spreading crown structure that extends over the adjacent highway. No remedial works required at time of survey.	A1+2	234.8	8.6
T3. pa	London plane *(Platanus x acerifolia)*	13	300	N: 2 E: 2 S: 2 W: 8	Crown: 3 north Branch: 10 average	Early mature	Good	Fair	Located within footway. Crown is suppressed by the more dominant T2 and T4 and is weighted west over highway. No remedial works required at time of survey.	B2	40.8	3.6
T4. pa	London plane *(Platanus x acerifolia)*	17	680	N: 6 E: 3 S: 5 W: 9	Crown: 8 west Branch: 4 north	Mature	Good	Fair	Located within footway. Crown weighted heavily to the west over adjacent highway. Crown comprises of two co-dominant leaders arising from main stem at 3m. No remedial works required at time of survey.	A1+2	209.5	8.2
T5. pa	London plane *(Platanus x acerifolia)*	17	650	N: 6 E: 2 S: 12 W: 11	Crown: 7 west Branch: 5 west	Mature	Good	Fair	Located within footway. Comprised of a single stem weighted to the south-west over adjacent highway. Crown has been subject of cyclical reduction on east side due to proximity with building. No remedial works required at time of survey.	A1+2	191.4	7.8
T6. pa	Norway maple *(Acer platanoides)*	7	210	N: 2 E: 2 S: 3 W: 3	Crown: 3 average Branch: 2 average	Early mature	Good	Good	Located on footway. Comprised of a single stem with well balanced crown structure. No remedial works required at time of survey.	B1+2	20.0	2.5

Survey Date: Friday 6th March 2020

Tree Survey Schedule

Site: Acorn House, 314-320 Grays Inn Road, London. WC1X 8DP.

Surveyor: Luke White *FdSc Arboriculture M.Arbor.A*

Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments and Preliminary Management Recommendations	Category grading	Root Protection Area (m^2)	Root Protection Radius (m)
T7. pa	Norway maple *(Acer platanoides)*	7	230	N: 2 E: 3 S: 3 W: 3	Crown: 3 average Branch: 2 average	Early mature	Good	Good	Located on footway. Comprised of a single stem with well balanced crown structure. No remedial works required at time of survey.	B1+2	24.0	2.8

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APPENDIX 3

Cascade Chart for Tree Quality Assessment

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Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of their current land use for longer than 10 years.	• 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 the removal of other category U trees (e.g. 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, or very low quality trees suppressing adjacent trees of better quality. Note Category U trees can have existing or potential conservation value which it might be desirable to preserve			Red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood–-pasture).	Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	Grey

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APPENDIX 4
Photographs

Photograph 1 – London plane T1 located within the Swinton Street footway.

Photograph 2 – London plane T2, T3, T4 and T5 located adjacent to Grays Inn Road.

Photograph 3 – London plane T2, T3, T4 and T5 located adjacent to Grays Inn Road.

Photograph 4 – Norway maple T6 and T7 located adjacent to Acton Street.