PROPOSED DEVELOPMENT

AT
EARLS COURT SQUARE,
LONDON SW5

ARBORICULTURAL
ASSESSMENT AND TREE
PROTECTION METHOD
STATEMENT

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FOR
SH ARCHITECTS
JANUARY 2014

This report must be read in conjunction with
Drawings References: BGC1/ EARLS COURT SQU/TCP Rev A
BGC1/ EARLS COURT SQU/TPP Rev B.
These drawings should be reproduced to scale and in colour.

1. INTRODUCTION

1.1. Instructions

1.1.1. I am instructed to inspect trees on, or adjacent to a block of garages close to the north-eastern corner of Earls Court Square, London SW5. I am to report on their ages, condition, suitability for retention, safe, useful life expectancies and other matters of arboricultural interest. This assessment is to be informed by the provisions of British Standard 5837 'Trees in Relation to Design, Demolition and Construction' (2012) – see Paragraph 3.6.2 of this report. The trees for inspection were indicated to me on a supplied digital drawing. I am then to provide advice as to their protection during a proposed development of the site.

1.2. Background information

1.2.1. My client is considering the re-development of the above site to support a single dwelling. My client seeks information as to the condition of trees on and adjoining the site, the better to inform such proposals. The site is within a Conservation Area designated under the provisions of the Town and Country Planning Act 1990 (as amended). An application for the erection of a single dwelling on this site was made to the Local Planning Authority in 2012 (case reference PP/12/02850). This was refused. A further application (Local Planning Authority case reference PP/13/00488) was made in 2013. This case was the subject of an informal appeal hearing (Planning Inspectorate references: P/K5600/A/13/2199008 and APP/K5600/E/13/199008). The appeal was dismissed.

1.2.2. Amendments have been made to the 2013 design and these are incorporated into the current application for Planning Consent of which this document forms an integral part.

1.2.3. Comments on the 2013 Inspector' report are made in this document, where appropriate.
1.3. Drawings and documents

1.3.1. I was supplied with a topographical survey in digital format. This has been annotated to show tree survey reference numbers, tree retention categories, root protection areas and crown radii. For ease of reference I have added the ancillary title Land at Earls Court Square, London SW5 – Tree Constraints Plan (Reference: BGC1/ EARLS COURT SQU/TCP Rev A). The design proposal ‘footprint’ was then superimposed over the Tree Constraints drawing to prepare a Tree Protection Plan – Reference: BGC1/ EARLS COURT SQU/TPP Rev B. These drawings are integral to this document and form part of it. Both drawings referred to are not representational and should always be reproduced to scale and in colour.
2. REPORT ON SITE VISIT AND SITE APPRAISAL

2.1. General

2.1.1. I visited the site on 23 January 2012 and on a second occasion in company with architects. All arboricultural and other data contained in this report were obtained during these visits. No access to adjoining land was possible during my inspections, although access was possible during the appeal site visit in October 2013.

2.2. Survey methodology

2.2.1. Inspection   Trees were inspected from ground level, using binoculars where necessary. No invasive examination technique (such as boring) was carried out. It should be noted that access to neighbouring properties was not possible and estimates of tree dimensions have been made in such cases. This is noted, where applicable at Appendix A. I was able to stand on the roof of the garages to obtain a good view of the trees in neighbouring gardens and to obtain measurements of the lower branches of Tree 8.

2.2.2. Data   These are shown at Appendix A of this report, together with identified ‘Root Protection Areas’ (RPAs) calculated using formulae contained in British Standard 5837 (2005) ‘Trees in relation to construction’

- Numbered tree reference.
- Species
- Tree height
- Stem diameter (tree stem diameter in millimetres at 1.5 metres above adjacent ground level or in accordance with formulae contained in British Standard 5837 ‘Trees In Relation To Design, Demolition and Construction’ (2012) for multi-stemmed trees). Note that where trunk diameter at 1.5 metres from ground level has been estimated due to inability to access neighbouring land, this has generally been deliberately slightly over-estimated.
- Branch spread (at four cardinal points)
- Height in metres of crown clearance above adjacent ground level (to inform on ground clearance, crown stem ratio and shading)
- Age class (young, middle aged, mature, over-mature, veteran)
- Physiological condition (e.g. good, fair, poor, dead)
- Structural condition (e.g. collapsing, the presence of any decay and physical defect)
- Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat
- Estimated remaining contribution in years (e.g. less than 10).
- Category grading (in accordance with British Standard 5837, 2005)

2.3. Topographical survey

2.3.1. The topographical survey supplied was found to be an accurate representation of the site, although I was unable to check some measurements as access to neighbouring land was not possible.
2.4. Description of site

2.4.1. Earls Court Square stands to the west of Earls Court Road and to the east of Warwick Road, both main urban thoroughfares. The Square is somewhat atypical of many London Squares, in that the northern and southern boundaries extend either side of the main Garden area, which is located to the western end of the Square. The site stands on the north-western corner of the Square, close to the northern junction within Earls Court Road. It currently supports three, single-storey, brick garages.

2.4.2. Land use within the immediate area is largely to residential accommodation, some houses being clearly in multiple occupancy. Architectural styles are typical of speculative construction in the late Victorian period, with occasional, later, 'infill' development. Immediately to the west is a block of flats (Northgate House), whose architectural style points to its likely construction during the 1960s. Earls Court Road supports mixed light commercial and residential properties and an Underground Station. Landform is comparatively level.

2.5. Tree population

2.5.1. The tree population within the immediate visual "envelope' is fairly high for an inner city area, with the principal visual elements being trees in Local Highway Authority ownership. Trees 1 to 3 (see Appendix A) fall within this category – they are Norway maples (Acer platanoides) in fairly early maturity. They have clearly been managed by periodic crown reduction and, with other highway trees, make a significant contribution to the character and amenity of the area.

2.5.2. Trees within the rear gardens of houses on the western side of Earls Court Road are visible from this section of Earls Court Square. The main trees whose presence is relevant to this application are shown on Drawing BGC1/EARLS COURT SQU/TCP Rev B. A number of small subjects, which are hardly visible from public viewpoints (shown as 4, 5 and 6) were assessed. These are of generally indifferent quality and make only a limited contribution to local visual amenity. Tree 7 (walnut - Juglans regia) is at some distance from the proposed development and, again, because of limited visibility makes only a limited contribution to local landscape quality. Tree 8 is a sycamore (Acer pseudoplatanus), which has a large crown. This has clearly been raised in the fairly recent past. The tree stands in the rear garden of No 288 Earls Court Road and is clearly visible from public viewpoints and contributes to the character and amenity of the area. This tree is the subject of the Royal Borough of Kensington and Chelsea Tree Preservation Order No 32, confirmed on 1 August 1972.
3. DISCUSSION

3.1. Proposal

3.1.1. The amended development proposal calls for the construction of a new house on two floors, the lowest being a basement. This is a significant amendment of the original design, which was for a house on three floors and has been partly prompted by the desire to remove the building further from the crown of Tree 8. It will result in a building on some 40 centimetres higher than the roof-line of the existing garage block. The property will occupy the site of the existing garage block and the hard standing area to the front of the block.

3.2. Tree roots

3.2.1. In making any analysis of the likely threats to retained trees on a proposed development site, it is essential that it is understood that the majority of tree roots are found within the top half-metre or so of soil. Although notes on Root Protection Areas as defined by British Standard 5837 ‘Trees In Relation To Design, Demolition and Construction’ (2012) are shown below, it should be appreciated that root colonisation is opportunistic and governed by both environmental factors and the aerial form and weight distribution of the tree. Trees compensate for uneven weight distribution and stress by forming ancillary, compensatory structures in response to hormonal redistribution.

3.2.2. Tree 8 This uneven distribution of roots is important particularly in the case of Tree 8, which has a heavily unbalanced and leaning crown and trunk (see Photograph 2).

3.2.3. Where trees are unbalanced in this way, the most intensive and extensive root colonisation takes place on the side away from the lean, with thicker and longer roots being formed on that side (MATTHECK, C. and BRELOER, H, 1994). Therefore, the largest part of the root mass of Tree 8 is likely to be towards the north – that is, generally away from the area of proposed development.

3.2.4. In addition, there are the remnants of a brick wall (apparently Victorian) on the northern boundary of the site. Excavation, undertaken on behalf of the owners of the wall, indicated that the boundary wall extends to at least 690 millimetres below ground level and that the base of the footings was not reached (see Photograph 2).

3.2.5. I consider that these foundations are likely to have presented an appreciable impediment to root colonisation. Experience has shown that such structures frequently divert roots when there are more congenial adjacent areas for colonisation (in this instance the fairly extensive open soil of gardens in Earls Court Road). The current version of British Standard 5837 ‘Trees in Relation to Design, Demolition and Construction’ (2012) recognises the fact that root morphology may differ from the ‘circular plot’.

3.2.6. Whilst roots may pass under built structures (such as the garages), there would little stimulus for them to do so, as water availability and gaseous exchange capability would be severely degraded – root growth is highly dependent on the soil environment. It should further be noted that the degree of intrusion by the development into the representational Root

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Protection Area of Tree 8 would be limited and far below the 20% intrusion which was allowed by the 2005 version of British Standard 5837.

3.2.7. Tree 3  There are two factors which are likely to affect the root spread of this tree. The crown management practised and the nature of the rooting medium (soil). The tree is managed by periodic crown reduction by the Local Highway Authority. Such management, whilst good arboricultural practice, is likely to have effects on tree growth due to the consequent reduction in photosynthetic potential and hormone production. One consequence of this is likely to be the formation of a more limited rooting area. I make reference to the

Photograph 2
Excavation adjacent to the boundary wall to the north of the site. I am informed that the pit shown reached to 690 millimetres below ground level and that the base of the footing of the wall was not revealed. No substantial roots are visible in the trial pit. The work was not undertaken by my client, I understand it was carried out by Terrain Surveys and a trial pit log was maintained.

Photograph 3
Sycamore Tree 8, showing pronounced lean. The remains of the former boundary wall can also be seen (arrowed red). The lighter area of brickwork (arrowed yellow) and sloped roof flashing indicates that a structure once stood adjacent to the boundary wall. The rear wall of the garage block is to the left of the photograph.

The relationship of the lower branches to the existing garage block can also be seen.
geotechnical report produced for my clients. The nearest trial pit/borehole (WS1) to Tree 3 shows no site record of roots at any level (Page 25), whilst the laboratory test notes by Soil Property Testing included in the document (Page 33) show ‘...and recently active and decayed roots’. These roots were not identified or further described – it is notable that they are not described as ‘woody’ which is the usual form in such reports. The sizes of roots are not shown and this would lead to an assumption that any roots recovered were comparatively small and were unnoticed during the site soil recovery. Some herbaceous weeds were present, growing in the hard-surfacing from which the borehole samples were taken. The soil is described as ‘dry’, despite the extremely heavy rainfall which occurred over the whole of the British Isles during 2012. Borehole WS1 shows a concrete top surface and sub-base to 400 millimetres depth with further made ground including ‘coal, clinker, gravel and occasional brick cobbles to 1.4 metres’. This constitutes a fairly heavy and deep ‘hard’ surface over the Root Protection Area of Tree 3. An extensive root examination project undertaken during 1994 showed ‘under thicker (tarmacked) surfaces roots were smaller’ (CRANE, B. G., 1997). I consider therefore that root colonisation under the concreted areas on and adjacent to this site is likely to be limited, partly due to the physical impediments to expansion beneath such covering and partly due to environmental conditions (and in particular the availability of water). The surface to the west of Tree 3 is formed of paving slabs (flags). Such surfaces are more likely to allow the ingress of water and acceptable conditions for gaseous exchange and I consider it likely that the major part of the functioning root system of Tree 3 falls under this paving and will be unaffected by the proposed development. The size of roots present is also of importance as roots change significantly the further they are from the parent tree. Thicker, older roots become impregnated with a waterproof material called suberin and no longer absorb water directly from the soil. Roots branch repeatedly and, at comparatively short distances from the tree, decrease to microscopic size – this allows them to make intimate contact with soil particles. It is the smaller, massed roots which absorb water and minerals from the soil. Whilst easily damaged, such roots regenerate easily. Larger roots will also regenerate from cut ends.

3.3. Overall perceived threat analysis - methodology

3.3.1. Analysis of the likely impact of the proposed development on the tree population is considered as:-

- An overall assessment and listing of perceived threats in general terms.
- Detailed analysis of threats to trees likely to be particularly at risk.
- Threat management suggestions.

3.3.2. In this instance, retained trees are likely to be at risk from:

- Root severance and other root damage, including soil compaction.
- Damage to aerial parts.
- General construction works and requirements, including placing of site accommodation.
- Measures for site access and installation of hard standing.
- Installation of service and drainage runs.

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3 Earls Court Square, Phase II Geotechnical Assessment Report, Reference DMB/770621/R1, Dated November 2012 MLM Environmental, Cambridge.
5 Ibid. Colour Section 1, Plate 5.3
3.4. Threats to trees during development

3.4.1. In recent years British Standard 5837 (1991) ‘Trees in relation to construction’ has provided useful guidance for the assessment and formulation of measures for the mitigation of such threats. Using the experience gained from this Standard, it was revised and upgraded to ‘Recommendation’ status as British Standard 5837 ‘Trees in Relation to Construction’ (2005). The initial arboricultural assessment for this project was carried out using the 2005 Standard. A revision and re-issue as British Standard 5837 ‘Trees in Relation to Design, Demolition and Construction’ (2012) became current in May 2012 and has been used to inform tree protection measures detailed in this document.

3.4.2. Note: The British Standard relies heavily on the creation of a protected zone (Root Protection Area) around each tree (see Appendix A) and the Tree Constraints Plan appended to this report. This zone is usually described as a circle, whose area is defined by the trunk diameter at 1.5 metres from ground level. The site assessment criteria adopted in the 2012 Standard differ from those in the 2005 Standard; however, the difference affects mainly the assessment of the Root Protection Areas of multi-stemmed trees and generally reduces such areas from those obtained using the formula shown in the 2005 Standard. The only subject likely to be affected by this change is Tree 5 and it was, in any event, impossible to gain access to this tree.

3.4.3. Attention is drawn to the remarks on uneven root distribution in response to external stresses shown under ‘Tree roots’ above.

3.4.4. A threat assessment and suggestions for threat mitigation, utilising the recommendations embodied in the 2012 Standard has been prepared in respect of those trees bordering this site which are likely to be affected by the proposal. This is shown at Appendix B of this report. More general remarks on the proposed development and its arboricultural implications are shown below.

3.5. Demolition of existing building

3.5.1. The existing garage building is likely to be of fairly light construction, with partition and external walls over fairly shallow foundations. The roof construction is light. Demolition of an existing building can pose a number of threats to retained trees, particularly where large machinery is used. I am of the opinion that these threats to trees may be effectively dealt with by:

- Tight and effective control of the demolition process
- Protection of aerial parts of trees by the erection of protective boarding as detailed at Appendix B, Figure 3.
- The erection of protective fencing (detailed at Appendix B, Figures 1a and 1b) as shown on Drawing BGC1/EARLS COURT SQU/TPP Rev B.

3.5.2. It is likely that demolished materials will be recovered into the roadway to the south of the site, thereby minimising any threat to trees consequent on handling.

3.5.3. The main threats to retained trees during demolition of the building are seen as:
3.5.4. **Damage to aerial parts**  Damage to aerial parts, that is: trunk, branches and roots may be caused by contact with machinery or falling parts of the building.

3.5.5. **Damage to rooting systems**  Provided that excavation of the existing foundations is kept entirely within the proposed ‘footprint’ of the new building; I see little added threat to retained trees.

3.6. **Installation of foundations – excavation**

3.6.1. Because the majority of tree roots are found at comparatively shallow levels in the soil, almost any excavation will sever them. In this instance, the construction of a basement is likely to result in root loss; however there will be comparatively little intrusion by the new building into the Root Protection Areas of retained trees. In addition, the site is already entirely overlain by hard surfacing which is likely to have proved unattractive for root colonisation. Further, there is a partly demolished wall running along the northern boundary, the foundations of which are likely to have acted to some extent as a barrier to root colonisation. I understand that this wall extends to at least 690 millimetres below ground level and that the base of the footings was not reached. Such a barrier (if not broken or breached) would have a marked effect in limiting root colonisation of neighbouring land, particularly if conditions on the far side of the wall were not particularly suitable for root growth. No roots of significant size were noted in the trial pit excavated on neighbouring land adjacent to the wall (see Photograph 2) and this strongly supports my view that root loss affecting Trees 3 or 8 will be negligible and unlikely to affect long term viability or stability.

3.6.2. In this regard it should be noted that successive versions of British Standard 5837 have recognised that some intrusion into a Root Protection Area may be permitted. Although no figure for such intrusion has been set by the latest version, the suggestion in earlier documents has been that this should be of the order of 20%. This degree of intrusion is not reached into the Root Protection Areas of any of the retained trees close to this project area. The largest intrusion in percentage area terms is into that of Tree 5, however, this is likely to attain a much lower area were it to be accurately measured and re-assessed using the criteria put forward in British Standard 5837 ‘Trees In Relation To Design, Demolition and Construction’ (2012).

3.6.3. I therefore see little threat to retained trees due to intrusion in their Root Protection Areas. Incursion into Root Protection Areas (particularly that of Tree 8) will be minimised. I understand that this will be done by excavating from the southern side and erecting the building boundary walls in sequence. Here I quote from the consulting structural engineer’s report:

> 4.4 ‘Each of the basement walls will be excavated and constructed in sequence so that at no stage is there any risk of instability of the surrounding ground or structures. A trench will be dug by a backhoe excavator with the sides supported by trench sheeting and trench props as excavations proceeds. Once the lowest level of the basement wall is reached, the design reinforcement will be placed in the lowest section will be fixed and the wall concreted. Starter bars will be fixed to provide connections to the return walls. The next level of wall will be similarly cast and this sequence will continue until ground level is reached. The further three basement walls will then be constructed similarly in sequence until the box is completed.’
4.4 Following completion of the construction of the basement walls, the ground inside of the basement will be excavated down to the lowest basement level and the basement slab cast. The slab will be keyed into the side walls.6

3.6.4. This method of construction will obviate the need for a safety trench on the northern side which is otherwise likely to be required in order to conform to the provisions of the Construction, Design and Management Regulations 2007 (it will also avert problems with access on to neighbouring land).

3.6.5. Root Protection Areas should also be protected by the erection of protective fencing (detailed at Appendix B, Figures 1a and 1b) as shown on Drawing BGC1/EARLS COURT SQU/TPP Rev B.

3.7. Ground compaction and damage by vehicle and plant wheels

3.7.1. Ground compaction prevents the ingress and egress of water and gases from the soil. It is likely to be avoided within Root Protection Areas, provided that protective fencing is erected and maintained in place before the commencement of, and during the whole period of the works. Damage by vehicle wheels tearing wet soil can be severe. Due to the nature of this development and the fact that much of the existing surface to the front of the site is covered by hard surfacing (concrete and paving slabs) I consider this danger to be lower than is usual on development sites, provided that all works are confined within the ‘footprint’ of the site and the hard surfacing to the front (i.e. they do not intrude into neighbouring gardens to the north and east).

3.8. Physical damage to aerial parts

3.8.1. Physical damage to the trunks and branches of retained trees is a perceivable risk during this development. The installation of protective fencing is normally used to mitigate this threat, however, it is not suitable for all trees in this case as it would impede passage along the public highway. I therefore propose close-in protection with physical barriers against damage being installed before works begin (see Drawing BGC1/EARLS COURT SQU/TPP Rev Band Appendix B, Table 1). Such protection will be afforded to all the major trees close to the development (Trees 1, 2, 3 and 8) and (because of the increased risk of crown damage) will be extended to the main lower branch of Tree 8. It should be noted that the installation of protective measures of this kind would require the consent of the tree owner(s).

3.8.2. Tree 8 (sycamore) overhangs the proposed development. Careful measurement has established that the house can be built under part of the crown of the tree with minimal need for branch removal.

3.8.3. I am confident that the contribution of this tree to the character and amenity of the area will not be reduced. It is likely that tree surgeons may have to pay more than one visit to obtain an acceptable clearance and aesthetic effect with minimal loss of branches. Consent for the development proposal will automatically allow works necessary to implement such proposal and this includes tree works. However, two provisos must be emphasised:

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The works must be no more than are necessary to implement the planning consent. Note that the reduction of weight on a branch will cause it to rise, thereby minimising the need for further reduction in weight – this process must carried out by a tree surgery contractor used to dealing sensitively dealing with large trees. It should be carefully controlled and the presence of an arboriculturist on site whilst works are in progress is recommended.

No unauthorised access to property to carry out tree works is inherent in the planning approval (i.e. tree works must be carried out from the developer’s property unless access consent is granted).

3.8.4. Tree works necessary to complete the initial stages of the scheme should be carried out before works begin. All works must conform to best, current arboricultural practice, guided by the provisions of British Standard 3998 Tree Work 2010. Such works include the installation of trunk and branch protection.

3.8.5. In 2013 the crowns of Tree 3 and Tree 2 (Norway maples) were reduced as part of the Local Authority’s tree management programme.

3.8.6. It is likely that there will only be a limited threat to Tree 8 from the lifting of building elements into the site. This is like to only involve the lifting of glass panels for the glass roof panel over the kitchen. I consider that the use of a crane for this purpose is likely to pose a considerable risk to retained trees and such equipment should not be used.

3.8.7. To avoid this, specialist contractors will mount such elements of the building horizontally beneath the branches of Tree 8 using hydraulic lifting equipment. Craning from above will therefore be avoided. A method statement for the installation of building components and the use of such equipment will be prepared and submitted by a specialist contractor.

3.8.8. Protection of those parts of trees considered at risk may be effected by the methods shown at Appendix B, Figures 3 and 4.

3.9. Site access

3.9.1. Access will be from the public highway over existing hard surfacing and should present few problems for retained trees

3.10. Storage, site facilities, etc.

3.10.1. All storage facilities should be within the proposed ‘footprint’ of the building.

3.11. Underground services

3.11.1. No specific detail as to the routing of underground services has been provided. However, there is ample room to provide access for underground services between the Root Protection Areas of Trees 2 and 3 (see orange area on Drawing Reference: BGC1/ EARLS COURT SQU/TPP Rev B). Excavation to install new services will not take place within Root Protection Areas of retained trees. Attention is drawn to National Joint Utilities Council Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG Publications, Volume 4, Issue 1, 25/9/2007) [NJUG4].
3.12. Installation of hard-surfacing, etc.

3.12.1. Hard surfaced areas are either within the ‘footprint’ of the building or within existing hard-surfaced areas (largely within public ownership). Where refurbishment of public pavements takes place within Root Protection Areas of retained trees, no excavation deeper than that already existing should be made.

3.13. Timing and control of operations

3.13.1. Tree works should be carried out before building works begin.

3.13.2. It is imperative that tree protection measures, in particular the installation of protective fencing and protective guarding around trunks and branches are put in place before any works begin.

3.13.3. It is essential that supervisory staff are aware of the need for tree protection during the works and that tree protection measures are brought to the attention of staff during any site induction.

3.14. Specific threats to retained trees

3.14.1. In addition to specific threats, detailed at Appendix B, Table 1, a number of generalised threats to retained trees have been identified. These are considered at Appendix B, Table 2 of this report, together with suggested measures for the mitigation of any perceived threat.

3.15. Tree removals and tree surgery

3.15.1. No trees will be removed in order to effect this development. Limited works to the southern side of Tree 8 may be necessary, but this will not affect its contribution to local visual amenity provided that it is undertaken sympathetically (see Appendix B, Table 1).

3.16. Tree Protection Method Statement

3.16.1. Threat analyses, together with suggestions for threat mitigation are shown at Appendix B of this report and should be read in accordance with appropriate specifications and figures at Appendix B and with Drawing Reference: BGC1/ EARLS COURT SQU/TPP Rev B.
4. SUMMARY

4.1. General remarks and references to 2013 Inspector’s report

4.1.1. An assessment of the tree population on and adjoining this site has been carried out in accordance with the provisions of British Standard 5837 Trees in Relation to Construction (2005). This assessment is presented at Appendix A of this report. (The recent updating of the Standard is unlikely to impact in any material way on this assessment. A detailed drawing (BGC1/ BGC1/ EARLS COURT SQU/TPP Rev B) showing tree retention categories, tree crown radii, reference numbering, root protection areas (described as a circle around each tree) and tree protection measures has been prepared and forms an integral part of this document.

4.1.2. British Standard 5837 ‘Trees In Relation To Design, Demolition and Construction’ (2012) gives guidance that development proposals are informed by the suitability for retention of trees inspected, that root protection areas are generally observed and that, where development and the need to retain trees presents conflict, that arboricultural advice is sought.

4.1.3. Tree roots The proposed development will impact lightly on existing trees, provided that threat mitigation measures detailed at Appendix B of this report are put in train. In the October 2013 appeal (Paragraphs 37 and 38) the Inspector states:

‘The Council’s principal concern appears to be that the process of excavation for the construction of the lower floor of the proposed development must encroach into the root protection areas (RPAs) of both trees. I accept that this is likely but I was not convinced that the outcome would be fatal to either of the two trees, especially if conditions citing protective measures during construction were proposed.......Overall, I was not persuaded that the risk to the Council owned maple in front of the proposed development was sufficient to weigh against allowing the appeal’.

4.1.4. Appendix B of this report outlines tree protection measures and should be read in accordance with appropriate specifications and figures at Appendix B and with Drawing Reference: BGC1/ BGC1/ EARLS COURT SQU/TPP Rev B.

4.1.5. Aerial parts In the 2013 Decision, the Inspector states: that Tree 8

‘...would be significantly screened by the increased height of the proposed development over the existing garages’.

However, this will be addressed by the reduction in proposed height inherent in the 2014 scheme.

4.1.6. Frequently, Local Planning Authorities raise objections to development on the grounds that there will be increased calls for reduction or removal of trees on or near a proposed development site. In this instance, there is a large tree (Tree 8) bordering the site which has been subjected to crown management in the past and which will certainly require attention in the future for the purposes of safety good arboricultural management. The implementation of the development which is the subject of this report is unlikely to increase any need for future tree management, the more particularly so, as the tree is on the boundary with the property to the north and therefore will not cast shade towards the proposed new house. The tree is
protected by a Tree Preservation Order and the Local Planning Authority therefore has control over the tree’s proper management. The effectiveness of the Local Planning Authority’s actions in dealing with applications for tree works is reflected in the very low number of appeals made to the Planning Inspectorate against decisions by the Royal Borough of Kensington and Chelsea over the last several years. In the October 2013 appeal (Paragraph 41) the Inspector recognises the potential for future problems, however, he states:

‘Were this the only issue produced by the proposed development, I would consider the resulting harm to be insufficient to weigh against the appeal’.

4.1.7. The reduction in height of the proposed building from that considered in 2013 will significantly reduce pressure for future tree management. Tree surgery is now a highly developed discipline in Britain and the management of trees without loss of amenity value is eminently possible.

4.1.8. The deposition of seasonal detritus is considered a matter for the property owner and removal of material such as leaves, spent fruit, small twigs and flowers as part of routine maintenance of a property. British Standard 5837 ‘Trees in Relation to Design, Demolition and Construction’ (2012) sets forward proposals that such problems be met at design stage by the provision of non-slip surfaces, gutter guards, etc. The use of self-cleaning glass will assist here. In the October 2013 appeal (Paragraph 40) the Inspector accepted that dealing with seasonal detritus of the type described is a matter for property owners.

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APPENDIX A

TREE SURVEY SHEETS

Data have been entered on these sheets as:

- Numbered tree reference (based on supplied topographical survey).
- Species
- Tree height (in metres)
- dbh Stem diameter (tree stem diameter in centimetres at 1.5 metres above adjacent ground level or immediately above root flare for multi-stemmed trees)
- Crown radii shown to four cardinal points as: N, E, S, W (in metres)
- CBP Height in metres of crown clearance above adjacent ground level (to inform on ground clearance, crown stem ratio and shading)
- Age class (young, middle aged, mature, overmature, veteran)
- Physiological condition (e.g. good, fair, poor, dead)
- Structural condition (e.g. collapsing, the presence of any decay and physical defect)
- Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat. Work likely to be necessary to effect development.
- SULE estimated remaining contribution in years (e.g. less than 10).
- Retention category grading (in accordance with British Standard 5837, 2005).

Retention category grading defined as:

- Quality Class R: 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 arboriculture management.
- Quality Class A: Trees of high quality and value: in such a condition as to be able to make a substantial contribution.
- Quality Class B: Trees of moderate quality and value in such condition as to make a significant contribution.
- Quality Class C: trees of low quality and value: currently in adequate condition to remain until new planting could be established or young trees with a stem diameter below 15 centimetres.

Note: This is not an assessment for safety or management purposes, although attention is drawn to significant defects where noted.
## APPENDIX A – TREE SURVEY DATA

**Location:** Earls Court square  
**Date:** January 2012  
**Surveyor:** BGC

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Species</th>
<th>Height</th>
<th>DBH</th>
<th>N</th>
<th>E</th>
<th>S</th>
<th>W</th>
<th>CBP</th>
<th>Age class</th>
<th>Physiological condition</th>
<th>Structural condition and remarks</th>
<th>Immediate management requirements</th>
<th>SULE (years)</th>
<th>Tree quality assessment</th>
<th>RPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Norway maple - Acer platanoides</td>
<td>14</td>
<td>32</td>
<td>5</td>
<td>4.5</td>
<td>5</td>
<td>4.5</td>
<td>3.5</td>
<td>Middle age</td>
<td>Good</td>
<td>Exposed roots. Maintained by periodic crown reduction. Local authority highway tree</td>
<td>Over 50</td>
<td>A</td>
<td>46.3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Acer platanoides</td>
<td>14</td>
<td>33</td>
<td>5.5</td>
<td>5</td>
<td>4.5</td>
<td>4.5</td>
<td>3</td>
<td>Middle age</td>
<td>Good</td>
<td>Exposed roots. Maintained by periodic crown reduction. Local authority highway tree</td>
<td>Over 50</td>
<td>A</td>
<td>49.3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Acer platanoides</td>
<td>14</td>
<td>43</td>
<td>7</td>
<td>6.5</td>
<td>6</td>
<td>6</td>
<td>2.5</td>
<td>Middle age</td>
<td>Good</td>
<td>Vehicle strike damage on road side. Slight trunk lean or inclination. Trunk wound (callused) on east side. Exposed roots. Maintained by periodic crown reduction. Local authority highway tree</td>
<td>Over 50</td>
<td>A</td>
<td>83.7</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cherry - Prunus (unidentified)</td>
<td>5</td>
<td>10</td>
<td>1.5</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>Middle age</td>
<td>Poor</td>
<td>Distorted lower trunk. Bacterial exudate at base. Measurements estimated</td>
<td>Limited</td>
<td>C</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Bay - Laurus nobilis</td>
<td>7</td>
<td>35</td>
<td>1.5</td>
<td>1.5</td>
<td>2</td>
<td>1.5</td>
<td>1.5</td>
<td>Middle age</td>
<td>Good</td>
<td>Commonly only attains shrub size in the British Isles. On neighbouring property. Multi-stemmed from ground level. Measurements estimated</td>
<td>20-30</td>
<td>C</td>
<td>38.5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Holly - Ilex aquifolium</td>
<td>6</td>
<td>16</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>Middle age</td>
<td>Good</td>
<td>On neighbouring property. Multi-stemmed from ground level. Measurements estimated</td>
<td>30-50</td>
<td>C</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Walnut - Juglans regia</td>
<td>10</td>
<td>30</td>
<td>4.0</td>
<td>5</td>
<td>2.5</td>
<td>2.5</td>
<td>2</td>
<td>Middle age</td>
<td>Good</td>
<td>On neighbouring property. Unbalanced crown formation. Trunk lean or inclination. Scatter of dead wood to 80 millimetres diameter. Measurements estimated</td>
<td>30-50</td>
<td>B</td>
<td>40.7</td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX A – TREE SURVEY DATA

**Location:** Earls Court square  
**Date:** January 2012  
**Surveyor:** BGC

<table>
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<tr>
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<th>SULE (years)</th>
<th>Tree quality assessment</th>
<th>RPA</th>
</tr>
</thead>
</table>
| 8       | Sycamore - *Acer pseudoplatanus* | 18     | 45   | 5.0 | 6   | 7.5 | 3   | 3.5 to lowest laterals. 6.5 metres to lowest major sub-lateral over garage ‘foot-print’ | Mature | Good | All measurements estimated. Severe trunk lean. Base very close to adjacent building. Unable to examine base closely. Crown recently raised. Scatter of dead wood to 80 millimetres diameter. Lowest branch on garage side is light at about 4 metres above ground level. Little aerial intrusion over proposed development site | Raise crown by removing light branch ends over proposed development to give appropriate clearance.  
See Also Appendix B, Table 1. | Over 50 | A  | 91.6 |

[^1]: [Appendix B, Table 1](#)
APPENDIX B

TREE PROTECTION METHOD STATEMENT

ARBORICULTURAL THREAT ASSESSMENT AND RECOMMENDATIONS

FOR DAMAGE MITIGATION

This Appendix should be read in conjunction with Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B– this drawing should be reproduced to scale and in colour.

- Protective fencing and trunk and branch protection should be installed before any works (including demolition of the garages) begin.

- All protective fencing, trunk and branch protection must remain in place for the full duration of the development.

- Where works, such as the installation of non-dig surfaces take place inside a fenced area, the protective fencing should be kept in place whilst the works are carried out.

- Protective fencing should be inspected by the site manager weekly and should be repaired as necessary.

- The fencing used should be permanent for the duration of the works and in accordance with Figures 1a and 1b of Appendix B of this report. It should not be of the portable ‘Heras’ type, unless this is securely fixed to the ground and braced against machinery impact where appropriate. More substantial fencing, including wooden hoarding may be used if approved by the Local Planning Authority.

- All drawings and specifications are representative only and intended to give guidance to structural or civil engineers for construction near trees.
## APPENDIX B – TABLE 1

### ARBORICULTURAL THREAT/IMPACT ASSESSMENT

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Perceived threat</th>
<th>Likely Impact</th>
<th>Suggested threat management</th>
<th>Perceived risk after implementation of tree protection measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees 2, 3 and 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| | ☐ Physical damage to aerial parts during the demolition process. | Loss of visual amenity  
Possible implications for long-term tree health. | ☐ Install tree protection as detailed at Appendix B, Figures 3 and 4 before demolition begins.  
☐ Detailed demolition method statement to be provided by Contractor.  
☐ Effective control of demolition process.  
☐ See Appendix B, Outline Specification 1.  
☐ Structure to be collapsed on to existing concrete floor.  
☐ Materials to be removed to public carriageway | Low |
| | ☐ Compaction of soil, ‘tearing’ of soil and roots by machinery | Loss of visual amenity  
Possible implications for long-term tree health.  
As above | | |

| Trees 1, 2, 3, 8 | | | | |
| | ☐ Physical damage to aerial parts during the construction process. | Loss of visual amenity  
Possible implications for long-term tree health.  
Possible implications for long-term tree health.  
As above | ☐ Root Protection Areas to be protected as shown on Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B with fencing as specified at Figures 1a and 1b of Appendix B and protective cladding as shown at Appendix B, Figure 3  
☐ Heavy elements to be installed at height should be lifted into position from below, not craned in.  
☐ Ground around ‘footprint’ of building is protected by hard-surfacing therefore risk is extremely low. | Low |
| | ☐ Compaction of soil, ‘tearing’ of soil and roots by machinery | Loss of visual amenity  
Possible implications for long-term tree health.  
As above | | Low |
| | | | | Low |
## APPENDIX B – TABLE 1

### ARBORICULTURAL THREAT/IMPACT ASSESSMENT

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<tr>
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<th>Perceived risk after implementation of tree protection measures</th>
</tr>
</thead>
</table>
| Tree 8  | **Damage to aerial parts (overhanging branches)** | - Loss of visual amenity  
- Possible implications for long-term tree health. |  
- Competent tree surgery contractor to remove lower lateral and sub-lateral branches on southern side of crown to give adequate clearance for building. This should be sufficient to provide 1.5 metres finished clearance under anticipated snow/rain loading. This should be done by a tree surgery contractor experienced in such works, under professional arboricultural supervision. It is likely that tree works will be carried out on more than one visit to ensure that minimal material is removed from the crown of the tree.  
- Install protective cladding to branches in accordance with Figure 4 of this Appendix to height at which physical damage unlikely.  
- If consent obtained from owner, protect trunk as shown at Appendix B, Figure 3. | Low |
## APPENDIX B – TABLE 1

### ARBORICULTURAL THREAT/IMPACT ASSESSMENT

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<th>Likely Impact</th>
<th>Suggested threat management</th>
<th>Perceived risk after implementation of tree protection measures</th>
</tr>
</thead>
</table>
| Trees 3, 5 and 8 | Excavation for foundations/semi-basement   | - Root loss due to excavation  
- Possible implications for long-term tree health  
- Possible stability implications (unlikely) | - Excavation only within ‘footprint’ of new building.  
- Root Protection Areas to be protected as shown on Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B with fencing as specified at Figures 1a and 1b of Appendix B.  
- Install sub-basement in accordance with Earls Court Square, Basement Construction Design Statement. Document reference: ARP/663337/PE. By Multidisciplinary Consulting, 2 Eldon Street, London EC2M 7LS, dated 29 June 2012. | Low – see Section 3.6 of report. Intrusion into Root Protection Areas is less than considered acceptable in 2005 version of British Standard (no specific guidance given in 2012 version). Tree 5 is likely to have a smaller Root Protection Area than shown on Drawings |
| Trees 2 and 3 | Installation of underground services | - Root loss due to excavation  
- Possible implications for long-term tree health  
- Possible stability implications | - Excavation for underground services to be made within area shown feint orange on Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B.  
- All installation of services to be carried out in accordance with National Joint Utilities Council Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG Publications, Volume 4). | Low |
### APPENDIX B

**TABLE 2 - ARBORICULTURAL THREAT/IMPACT ASSESSMENT - GENERALISED TREATS**

<table>
<thead>
<tr>
<th>Perceived threat</th>
<th>Likely Impact</th>
<th>Suggested threat management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil compaction by machinery</td>
<td>❑ Degradation of rooting zones</td>
<td>❑ Install and maintain stout fencing to conform to Appendix B, Figure 2 located as shown on Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B</td>
</tr>
<tr>
<td>Storage of materials</td>
<td>❑ Prevention of ingress of air and water to roots</td>
<td>❑ Install and maintain stout fencing to conform to Appendix B, Figure 2 located as shown on Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ Prohibit all activities within Root Protection Areas, including storage of materials.</td>
</tr>
<tr>
<td>Damage to aerial parts by plant and machinery</td>
<td>❑ Loss of photosynthetic area</td>
<td>❑ Install and maintain fencing as above.</td>
</tr>
<tr>
<td></td>
<td>❑ Wounds may facilitate entry of disease</td>
<td></td>
</tr>
<tr>
<td>Poisoning of roots by chemicals</td>
<td>❑ Toxicity - long and short term effects on trees</td>
<td>❑ Install fencing as above.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ Measures to prevent storage of chemicals (including fuel) within fencing</td>
</tr>
<tr>
<td>Fires</td>
<td>❑ Damage to aerial parts and roots</td>
<td>❑ Install fencing as above.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ No fires or combustible materials to be within fenced area.</td>
</tr>
</tbody>
</table>
## APPENDIX B

### TABLE 2 - ARBORICULTURAL THREAT/IMPACT ASSESSMENT - GENERALISED TREATS

<table>
<thead>
<tr>
<th>Perceived threat</th>
<th>Likely Impact</th>
<th>Suggested threat management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of aerial parts consequent on pruning to clear obstacles</td>
<td>❑ Loss of photosynthetic area - resulting loss of vigour in tree</td>
<td>❑ Minimised by carefully specified and supervised tree surgery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ No other pruning to be carried out</td>
</tr>
<tr>
<td>Root loss due to severance</td>
<td>❑ Severe set-back to tree health. May lead to tree death and/or instability</td>
<td>❑ No operations involving root severance to be permitted without specific approval and agreement with Local Planning Authority</td>
</tr>
<tr>
<td>Erection of and work from, scaffolding</td>
<td>❑ Degradation of rooting zone</td>
<td>❑ Erect and maintain scaffold and ground protection as shown at Appendix B, Figure 2.</td>
</tr>
<tr>
<td></td>
<td>❑ Prevention of ingress of air and water to roots</td>
<td></td>
</tr>
<tr>
<td></td>
<td>❑ Deposition of mortar and chemicals - toxicity - long and short term effects on tree</td>
<td></td>
</tr>
<tr>
<td>Root loss due to severance</td>
<td>❑ Severe set-back to tree health. May lead to tree death and/or instability</td>
<td>❑ No operations involving root severance to be permitted without specific approval and agreement with Local Planning Authority</td>
</tr>
</tbody>
</table>


### APPENDIX B

**TABLE 2 - ARBORICULTURAL THREAT /IMPACT ASSESSMENT - GENERALISED TREATS**

<table>
<thead>
<tr>
<th>Perceived threat</th>
<th>Likely Impact</th>
<th>Suggested threat management</th>
</tr>
</thead>
</table>
| Installation of underground services, involving root severance. | • Severe set-back to tree health. May lead to tree death and/or instability | • No operations involving root severance to be permitted without specific approval and agreement with Local Planning Authority.  
  • All installation of services to be carried out in accordance with National Joint Utilities Council Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG Publications, Volume 4)  
  • No severance of roots greater than 25 millimetres in diameter.  
  • All services to be passed under retained roots.  
  • All excavations within crown spread of trees to be by hand. |
APPENDIX B

Figure 1a – Protective Fencing

For locations see Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B.

More substantial fencing, including wooden hoarding, may be used if approved by the Local Planning Authority.

APPENDIX B

Figure 1b – Protective Fencing

For locations see Drawing reference: BGC1/ EARLS COURT SQU/TPP Rev B. More substantial fencing, including wooden hoarding, may be used if approved by the Local Planning Authority.

APPENDIX B

Figure 2 – Erection of scaffolding within Root Protection Areas – see Drawing BGC1/ EARLS COURT SQU/TPP Rev B
APPENDIX B

Figure 3 – individual tree trunk protection

Corrugated plastic land drainage pipe secured loosely around trunk under boarding

Boarding must extend beyond root ‘flare’ or any exposed roots

25 millimetres thick ply strengthened with battens, must extend to at least height of lowest branch
APPENDIX B

Figure 4 – branch protection. To be installed by competent tree surgery contractor

- Corrugated, flexible land drainage pipe wrapped around branch under wooden stakes
- Metal strapping or wire secured with tensioners
- Extend protection as necessary to reduce risk of damage during construction
APPENDIX B

OUTLINE SPECIFICATION 1

DEMOLITION OF EXISTING GARAGE BLOCK

Demolition of an existing building can pose a number of threats to retained trees, particularly where machinery is used.

- **Damage to aerial parts**: trunk, branches and exposed roots may be caused by contact with demolished materials or machinery

- **Damage to roots**

I am of the opinion that these threats to trees may be effectively dealt with by:

- **Tight and effective control of the demolition process**

- **Protection of aerial parts of trees by the erection of protective fencing.** Siting of protective fencing is shown on Drawing BGC1/ EARLS COURT SQU/TPP Rev B.

- **The use of a ground or ‘banksman’ to guide the driver of any mechanical plant used.**

**The removal of existing superstructure – walls, roof, etc.**

This should be done by collapsing these structures in on to the existing floor slab.

**The removal of existing footings and floor slab**

In view of the extent of identified Root Protection Areas, I see little threat to retained trees as a result of this part of the operation.

**Removal of materials**

Demolished materials should be recovered into the public carriageway.