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Arboricultural Implications Report

Proposed development at

Grove Lodge

Admirals Walk

Hampstead, NW3



July 2015

Ref. SJA air 14042-04d

SUMMARY

S1. Simon Jones Associates has undertaken a tree survey and made an assessment of the impacts of the proposed development on 15 individuals and one group of trees growing on or immediately adjacent to this site, in accordance with British Standard BS 5837: 2012, *Trees in relation to design, demolition and construction – Recommendations* (BS 5837).

S2. Our assessment of the arboricultural impacts of the scheme concludes that six individual trees and three trees from within group G1 are to be removed. The trees to be removed are:

- Lime tree no. 1 growing adjacent to Admirals Walk in the south-east corner of the site, this specimen forms part of one of the main arboricultural features but is assessed as category 'C';
- Magnolia no. 8 within the rear garden growing close to the northern boundary of the site which is assessed as category 'C';
- Willow leaved pear no. 13 and bay tree no. 14 growing in small planters at the front of the property, both these are assessed as category 'C';
- Leyland cypress trees nos. 15 and 16 growing alongside the existing gravel path close to the southern flank wall of the existing garage, these are both assessed as category 'C'; and
- Three apple trees from within group G1 growing inside the western boundary wall of the site, these specimens and the group as a whole have been assessed as category 'C'.

The proposed felling of the trees identified for removal will represent only a very minor alteration to the main arboricultural features of the site and will not have a significant adverse arboricultural impact on the character and appearance of the local landscape or the conservation area.

S3. Eleven new trees will be planted:

- Three semi-mature lime trees to be planted in the rear garden close to the west boundary wall as a continuation of the existing line of lime trees (nos. 5 and 6);

- A 'heavy standard' size (14-16cm girth and 350-400cm tall) lime tree to be planted as a replacement for lime tree no.1 in the south-east corner of the site adjacent to Admirals Walk;
- A heavy standard evergreen magnolia to be planted, as a replacement for the magnolia no.8, in the rear garden close to the south-west corner of the site;
- Three heavy standard wild cherry trees to be planted in the rear garden, one of these close to the boundary of the site with Terrace Lodge, the others to be planted next to the west boundary wall as replacements for the apples from group G1;
- A heavy standard walnut tree to be planted in the rear garden close to the boundary of the site with Terrace Lodge and to the west of the internal dividing wall;
- Two heavy standard hawthorn trees to be planted in the bank which runs along the southern boundary adjacent to Admirals Walk, these will be to replace the cypress trees (nos. 15-16); and
- A light standard willow leaved pear to be planted in the existing planter at the front of the site as a replacement of the existing tree of the same species in this position.

The proposed planting of new trees will result in a net increase of two additional trees (+9.5% tree cover) ultimately enhancing the character and appearance of the Hampstead Conservation Area insofar as these are contributed to by trees. The proposed tree planting will also mitigate the proposed removals, improve the diversity of species on site with added landscape and ecological benefits and the net increase in tree cover is in line with 'The London Plan'.

S4. The proposals include minor incursions into the RPAs of five of the trees to be retained (limes nos. 2-4, magnolia no. 10 and an apple tree in group G1) The largest of these is 18% of the RPA and all can be satisfactorily mitigated through the implementation of the measures recommended on the TPP and set out section 6.2 of this report. No significant or long-term damage to the root systems or environments of the retained trees will occur as a consequence of the proposed development.

S.5. We conclude that the arboricultural impact of this scheme is of low magnitude, and that the proposed development would not have a significant adverse arboricultural impact on the character and appearance of the local landscape or the conservation area, or on the amenity or biodiversity that the existing trees provide. Therefore, the proposals comply with local and national planning policy guidance.

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APPENDICES

1. Tree survey schedule (SJA tss 14042-04a)
2. Tree locations plan (SJA TL 14042-05a)
3. Trial trench excavation report, elevation and plan
4. Tree protection plan (SJA TPP 14042-06c)

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1. INTRODUCTION AND BACKGROUND INFORMATION

1.1. Instructions

1.1.1. Simon Jones Associates Ltd. (SJA Ltd.) has been instructed by Design NA Architects on behalf of Mr Caspar Berendsen (the Applicant) to visit Grove Lodge, Admirals Walk, Hampstead, and to survey the trees growing on or immediately adjacent to this site. We are instructed to record the trees' locations, species, dimensions, ages, condition, and visual importance; and to categorise them in accordance with British Standard BS 5837: 2012, *Trees in relation to design, demolition and construction — Recommendations* (BS 5837).

1.1.2. We are further asked review the significance of the trees in the local landscape and to identify which trees are likely to have to be retained in the context of a proposed development of the site, to assess the implications of the development proposals on these specimens, and to advise how they should be protected from unacceptable damage during demolition and construction.

1.2. Scope of report

1.2.1. This report and its appendices reflect the scope of our instructions, as set out above. It is intended to accompany householder and listed building consent applications to be submitted to The London Borough of Camden, and complies with local validation requirements, and with the recommendations of BS 5837.

1.2.2. BS 5837 takes the form of guidance and recommendations and is intended to assist decision-making within the planning system with regards to existing and proposed trees in the context of design, demolition and construction. The use of BS 5837 when reporting on the impacts of a proposed development is entirely relevant (if not more so) within conservation areas and within the grounds of listed buildings.

1.2.3. The proposed development comprises a Listed Building Consent application for:

“Internal and external alterations and refurbishment of the listed house, demolition and replacement of part of the southern wing with a two storey extension,

replacement garage, along with an extension to the existing one storey basement. Demolition of garden structures, permanent and temporary demolition to interior and exterior garden walls, plus the construction of an Orangery within the garden.”

and an application for Planning Consent for:

“The demolition and replacement of part of the southern wing with a two storey extension, replacement garage, along with an extension to the existing one storey basement. Demolition of garden structures, permanent and temporary demolition to interior and exterior garden walls, plus the construction of an Orangery and works to trees, including the removal of nine category ‘C’ trees including one TPO lime tree and the planting of 11 new trees.”

1.2.4. This report summarises and sets out the main conclusions of the baseline data collected during the tree survey, and identifies those trees or groups of trees whose removal would result in a significant adverse impact on the character or appearance of the local environment (Section 3). It then details and assesses the impacts of the proposals on trees, including which are to be removed (Section 4) or pruned (Section 5) or which might incur root damage that might threaten their viability (Section 6). These assessments are then summarised in Section 7, considered in relation to national and local planning policy, and our conclusions are presented.

1.3. Site inspection

1.3.1. A site visit and tree inspection was undertaken by Frank Spooner of Simon Jones Associates Ltd., on Wednesday the 19th February 2014. Weather conditions at the time were dry with scattered cloud. Deciduous trees were not in leaf. Subsequent site visits were undertaken by Frank Spooner on Thursday the 23rd May 2014 and Thursday the 7th May 2015. Weather conditions on both subsequent occasions were clear, dry and bright. Deciduous trees were in full leaf.

1.3.2. The site was visited by Ken Scarlett of Simon Jones Associates on 18th September 2014 who supervised the manual excavation of two trenches: one along the outside of the southern wall of the existing garage and the other along the inside of the boundary wall in the north-west corner of the site.

1.3.3. The site was also visited by Ben Jameson of Simon Jones Associates on 7th October 2014 following the pre-application comments of the LPA's Tree Officer. On this visit trees nos. 12, 13, 14, 15 and 16 were surveyed.

1.4. Site description

1.4.1. The site is located on the north side of Admirals Walk, and the north, east and south-west boundaries adjoin residential properties on Admirals Walk and Upper Terrace. The west boundary backs onto Lower Terrace.

1.4.2. The site currently comprises a two storey semi-detached dwelling with an attached garage that has recently been extended. The garage and ground floor open up onto the street with only a small courtyard area at the front of the property, and the rest of the ground floor is all at the same level. The rear of the property opens up onto the gardens which are approximately 1m higher and are accessed via short sections of steps in several places. This rise in ground level is also apparent along the southern wall of the garage and its rear extension so that the floor level of the garage is approximately 850mm lower than ground outside the southern boundary wall. The garage does not demark the extent of the site in this instance, the property extends to the edge of the highway to the south.

1.5. Statutory controls

1.5.1. In order to ascertain if any of the trees that we surveyed are covered by a tree preservation order (TPO) we contacted the LPA requesting this information. The LPA tree officer responded verbally and in writing confirming that the only trees we surveyed that are covered by a TPO are the lime trees nos. 5 and 6. **Figure 1**, below is a copy of the screen shot sent to us by the LPA showing which trees, according to their records, are covered by a TPO (the green dots highlighted by the tree officer represent protected trees).

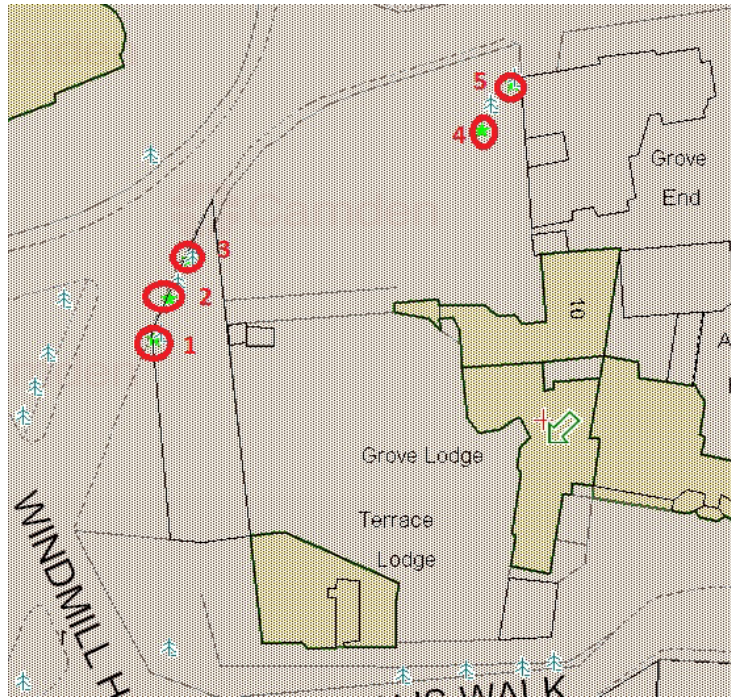


Figure 1: Extract from the LPA's TPO records

1.5.2. The reference cited by the LPA for this TPO is '9H'; a copy of this TPO was obtained from the LPA's Land Charges Department. The TPO is called 'The County of London (Hampstead No. 9) Tree Preservation Order, 1956'. Upon inspection of this TPO the First Schedule references G2 consisting of seven lime trees on "**Land comprising a bank flanking the roadway at the west end of Admirals Walk**". This would appear to imply that lime trees nos. 1-4 are covered by this TPO. However, the documents sent to us by the LPA do not contain a plan showing the trees and groups listed in the First Schedule which we believe must be an oversight on their part as we have seen a copy of the plan from another source.

1.5.3. In light of this inconclusive information we sought clarification from the LPA, and the Council's Tree and Landscape Officer has confirmed (in an email dated the 1st July) that, despite amendments made to the 1956 TPO by way of Revocation Orders made in respect of certain other trees, and contrary to his earlier advice, the four lime trees nos. 1-4 within Admirals Walk are within group G2 of the TPO, and thus remain protected by the Order.

1.5.4. Notwithstanding this information, it should be emphasized that our assessment of the trees in relation to their impact on the local landscape, their contribution to the character and appearance of the Conservation Area and the

significance of the impacts of the proposals on these trees is independent of whether or not they are covered by a TPO. The quality, value and potential of the trees was assessed and recorded during our survey of the site. The presence of a TPO does not add further value to a tree, since what must be remembered is the principle that a tree should be protected by a TPO because it is of value; it is not of value because it's covered by a TPO.

1.5.5. The entirety of the site is within the boundaries of the Hampstead Conservation Area and therefore all trees (with trunk diameters of greater than 75mm) are afforded a level of protection. The Hampstead Conservation Area Appraisal does not include a list or plan showing important trees which contribute to the character or appearance of the area. Instead the appraisal is primarily focussed on the architectural character and appearance of the area. Descriptions of buildings and street furniture feature in the appraisal and streetscape audit with very little reference to trees.

2. METHODOLOGY

2.1. National policy context

2.1.1. Under Section 197 of the Town and Country Planning Act 1990, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The effects of proposed development on trees are therefore a material consideration in dealing with planning applications, and this is normally reflected in local development planning policies.

2.1.2. Paragraph 14 of the National Planning Policy Framework (NPPF), (March 2012), states that there is a presumption in favour of sustainable development:

2.1.3. “At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking.”

2.1.4. The NPPF makes it clear that planning permission for development should be granted unless the proposal is inconsistent with policies within the development plan, any adverse effects significantly and demonstrably outweigh the benefits, or the NPPF itself indicates that the proposal should be restricted.

2.1.5. Trees are mentioned specifically at paragraph 118 of the NPPF, which states: **“planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.”**

2.2. Local policy context

2.2.1. In addition to the NPPF, planning applications within a London Borough need to adhere to The London Plan, as amended. Policy 7.21 ‘Trees and Woodlands’ of the London Plan relates directly to the protection of trees and woodlands and the relevant section states:

“Planning decisions

B Existing trees of value should be retained and any loss as the result of development should be replaced following the principle of ‘right place, right tree’¹ . Wherever appropriate, the planting of additional trees should be included in new developments, particularly large-canopied species

LDF preparation

C Boroughs should follow the advice of paragraph 118 of the NPPF to protect ‘veteran’ trees and ancient woodland where these are not already part of a protected site.

D Boroughs should develop appropriate policies to implement their borough tree strategy”

2.2.2. In line with the London Plan Camden have developed a Local Development Framework which is comprised of (amongst other documents) the Core Strategy and Development Policies.

2.2.3. The Camden Core Strategy was adopted on the 8th November 2010 and contains core policies which relate to trees and landscape character.

2.2.4. The relevant sections of Core Policy CS14 ‘ Promoting high quality places and conserving our heritage’ state:

“The Council will ensure that Camden’s places and buildings are attractive, safe and easy to use by:

b) preserving and enhancing Camden’s rich and diverse heritage assets and their settings, including conservation areas, listed buildings, archaeological remains, scheduled ancient monuments and historic parks and gardens;

c) promoting high quality landscaping and works to streets and public spaces;”

2.2.5. The relevant sections of Core Policy CS15 ‘ Protecting and improving our park and open spaces and encouraging biodiversity’ state:

“The Council will protect and improve Camden’s parks and open spaces. We will:

The Council will protect and improve sites of nature conservation and biodiversity, in particular habitats and biodiversity identified in the Camden and London Biodiversity Plans in the borough by:

- e) protecting other green areas with nature conservation value, including gardens, where possible;**
- g) expecting the provision of new or enhanced habitat, where possible, including through biodiverse green or brown roofs and green walls;**
- h) identifying habitat corridors and securing biodiversity improvements along gaps in habitat corridors;**
- j) protecting trees and promoting the provision of new trees and vegetation, including additional street trees.”**

2.2.6. The Camden Development Policies document was adopted on the 8th November 2010. This includes 2 policies which relate to trees.

2.2.7. Policy DP22 ‘Promoting sustainable design and construction’ does not specifically reference trees but provides the context in which the following policies have been written.

2.2.8. Policy DP24 ‘Securing high quality design’ states:

The Council will require all developments, including alterations and extensions to existing buildings, to be of the highest standard of design and will expect developments to consider:

- f) existing natural features, such as topography and trees;**

2.2.9. Policy DP25 ‘Conserving Camden’s heritage’ states:

Conservation areas

In order to maintain the character of Camden’s conservation areas, the Council will:

- e) preserve trees and garden spaces which contribute to the character of a conservation area and which provide a setting for Camden’s architectural heritage.**

2.2.10. Other documents in the Local Development Framework include Area Action Plans and Supplementary Planning documents. With the exception of Hampstead Conservation Area Appraisal none of these are relevant to the implications of this development on the trees on this site.

2.2.11. We have reviewed the Hampstead Conservation Area Character Appraisal and can summarise its relevance to this site as follows. Grove Lodge is within Sub Area Four 'Church Row/Hampstead Grove' of the Character Appraisal. Trees are occasionally mentioned in this Character Appraisal and it can be assumed that those trees that are mentioned are trees that the LPA believe contribute to the character and appearance of the area. None of the trees we surveyed on and adjacent to this site are mentioned specifically in the appraisal. However, the lime trees nos. 5 and 6 are mentioned in the Hampstead Conservation Area Streetscape Audit which is read as a separate document as it was too large to append to the Character Appraisal.

2.2.12. The Guidelines section of the Appraisal provides a framework against which development proposals should be assessed, a sub-section of this relates to trees and is four paragraphs long. The Appraisal references the Borough's Unitary Development Plan adopted March 2000 which predates the Local Development Framework but is not to be discounted. The section on trees states that **"All trees which contribute to the character or appearance of the Conservation Area should be retained and protected"**. However, it does not list or present a plan detailing which trees the LPA consider contribute to these attributes.

2.2.13. The Appraisal also states that **"Applications for development should take into account the possible impact on trees and other vegetation, and state clearly whether any damage/removal is likely and what protective measures are to be taken to ensure against damage during and after work"**. This paragraph cites an earlier version of BS 5837 (1991) as a minimum standard for assessment of impacts of a development on trees; as stated in paragraph 1.2.1 of this report the latest version of BS 5837 (2012) has formed the basis of our survey and assessment of these proposals.

2.3. Pre-application advice and recent planning history of the site

2.3.1 In August 2014 the applicant met with the LPA tree officer on site to discuss the potential removal of lime trees nos. 1 and 3. The tree officer expressed the view that he did not object to their removal providing they were replaced with suitable alternatives. He also expressed the view that the retention of the elm tree no. 12 would help soften the impact of the removal of tree no. 1. The tree officer suggested that rather than replacing the lime trees on a 'like for like' basis it may be preferable to replace them with smaller trees such as hawthorn to create a more informal streetscape. At this time the tree officer confirmed verbally that the trees are not covered by a TPO.

2.3.2. In light of these pre-application discussions a Conservation Area Notice (ref: 2014/6671/T) was submitted, in good faith, for the removal of tree no. 3. In response to this notice the LPA responded to say it would not be making a new TPO to protect the tree.

2.3.3. Following the Conservation Area Notice decision tree no.3 was removed from our plans and we submitted an Arboricultural Impacts Report and Tree Protection Plan in support of a householder application (ref: 2015/0886/P) and application for listed building consent (ref: 2015/1032/L) in early 2015. These applications were withdrawn in order to respond to, and amend the scheme in the light of, comments received during the public consultation period.

2.3.4. Lime tree no. 3 has been reinstated on our plans for the current proposals. In the light of the inconclusive information we received with regards to the TPO, we believed this was the most reasonable approach to take so that the impact of the scheme on this tree can be reconsidered by the LPA.

2.3.5. Key points raised by the public consultation that have been considered and addressed in the current proposals are:

- That there is a TPO in place protecting the lime trees along Admirals Walk contrary to the information originally obtained from the tree officer (see section 1.5);

- The previous application did not provide sufficient consideration of the heritage issues relating to trees in the Conservation Area (see paragraph 1.5.5, section 2.2 and paragraphs 7.3.5-7.3.6.);
- The lack of screening at the rear of the property between Grove Lodge and other properties to the north-west, west and south-west (see paragraph 4.2.26.);
- That trees play an important part in the flow and uptake of ground water (see paragraph 4.2.27);
- That lime trees should be replaced with lime trees and other medium sized trees should be planted elsewhere in the site (see section 4.2);
- Reducing trees should not be an option in the Conservation Area (see section 5);
- Historically there were more lime trees along Admirals Walk and Lower Terrace (see paragraph 4.2.23); and
- That the lines of lime trees are a strong feature in the character of the Conservation Area (see section 4.2).

2.3.6. As well as the recent planning history and public consultation a separate issue with regards to ownership of tree nos. 1-4 and 12 arose between the applicant and the LPA. Tree nos. 1-4 were on the LPA Parks and Gardens Department's pruning schedule as it believed it owned and was responsible for the management of the trees. The applicant has since contacted the LPA and confirmed with them that the trees are in fact within the curtilage of Grove Lodge and are, therefore the responsibility of the owners of Grove Lodge. The LPA has confirmed that their records have been updated.

2.4. Tree survey and baseline information

2.4.1. We surveyed the individual trees with trunk diameters of 75mm and above² growing within or immediately adjacent to the site; and recorded their locations, species, dimensions, ages, condition, and visual importance in accordance with BS 5837. The baseline information collected during our site survey was recorded on site using a hand-held digital device. This information was then imported into an Excel spreadsheet and used to produce the tree survey schedule at **Appendix 1**. The

² BS 5837, paragraph 4.2.4 b), recommends that all trees over 75mm stem diameter should be included in a pre-planning land and tree survey..

numbers assigned to the trees in the tree survey schedule correspond with those shown on the appended tree locations and protection plans.

2.4.2. We inspected the trees from the ground only, aided by binoculars as appropriate, but did not climb them. We took no samples of wood, roots or fungi. We did not undertake a full hazard or risk assessment of the trees, and therefore can give no guarantee, either expressed or implied, of their safety or stability.

2.4.3. We have categorised the trees in accordance with Table 1 of BS 5837, see **Figure 2** below.

Table 1 Cascade chart for tree quality assessment

Table 1 Cascade chart for tree quality assessment			
Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
Category U Those 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	<ul style="list-style-type: none">• 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 (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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>		
	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)
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 remediable 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
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 150 mm	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

Figure 2: Table 1 from BS 5837

2.4.4. However, we have adapted this methodology in line with the thrust of the NPPF's presumption in favour of sustainable development, giving greater weighting to the contribution of a tree to the character and appearance of the local landscape, to amenity, or to biodiversity, where its removal might have a significant adverse impact on these factors.

2.5. Tree locations plan

2.5.1. The information in the tree survey schedule has been used to produce the tree locations plan at **Appendix 2**, which is based on the topographical survey plan provided, and provides a representation of the existing tree cover in relation to the existing site plan.

2.6. Tree constraints

2.6.1. In line with the NPPF's presumption in favour of sustainable development, we assessed which trees should be retained in the context of a proposed development. To do this, we identified the main arboricultural features within or immediately adjacent to the site, whose removal we considered would have an adverse impact on the character and appearance of the local landscape, on amenity or on biodiversity.

2.6.2. BS 5837 states that trees in categories 'A', 'B' and 'C' are all a material consideration in the development process, the retention of category 'C' trees, being of low quality or of only limited or short-term potential, will not normally be considered necessary where they impose a significant constraint on development.

2.6.3. BS 5837 makes it clear that young trees, even those of good form and vitality, which have the potential to develop into good quality specimens when mature "*need not necessarily be a significant constraint on the site's potential*"³.

2.6.4. BS 5837 also states that "...care should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal"⁴.

2.6.5. The 'Root Protection Areas' (RPAs)⁵ of the trees identified for retention were calculated in accordance with Section 4.6 of BS 5837; and were assessed taking account of factors such as the likely tolerance of a tree to root disturbance or

³ Ibid. 4.5.10.

⁴ Ibid. 5.1.1.

⁵ The minimum area around a retained tree "**deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.**" BS 5837, paragraph 3.7.

damage, the morphology and disposition of roots as influenced by existing site conditions (including the presence of existing roads or structures), as well as soil type, topography and drainage.

2.6.6. Section 4.6 of BS 5837 recommends, where appropriate, the shapes of the RPAs (although not their areas) are modified as a result of these considerations, so that they reflect more accurately their likely root distribution. However, due to the topography and restricted rooting environments for some of the trees on this site we have adopted a site specific approach to establishing the likely rooting environments of the trees relevant to this application. The methodology and findings are discussed below and evaluated in section 6 of this report.

2.6.7. Lime trees nos. 1-4: It was clear to us following our survey that the rooting environments of these trees are very limited. The four trees occupy a narrow strip of land approximately 18m in length with dramatic level changes to the north and south. At the eastern end of this strip of land the base of tree no. 1's trunk is approximately 600mm higher than the road surface and level with the floor level of the property's ground floor and existing garage. At the western end of this strip of land the base of tree no. 4's trunk is approximately 2m higher than the road level and 800mm higher than the level of the ground floor and garage. **Photographs #1 and #2** below help to illustrate this:



Photograph #1: showing eastern end of strip of land in which tree nos. 1-4 are growing



Photograph #2: showing the western end of the strip of land in which tree nos. 1-4 are growing

2.6.8. The rooting environment for these trees is limited because their roots are unlikely to be growing in any significant profusion under the road surface as the conditions here will be anaerobic and unsuitable for root growth. Similarly the roots are unlikely to be proliferating under the garage due to the anaerobic conditions and

because the foundations for the garage and the retaining wall of the sunken courtyard present physical barriers to root growth. These factors are compounded by the fact that all the trees are competing with each other in this small strip of land.

2.6.9. As these trees have very limited rooting environments we have represented the RPAs as circles with radii 80% of that recommended by the British Standard. Due to the vigour of lime as a species and its tolerance of restricted rooting environments, the physiological condition of these specimens, the restricted nature of this site and the significant barriers to root growth we believe this is the most appropriate representation of their RPAs.

2.6.10. However, following the above assessment of the likely rooting environment we undertook investigatory works to ascertain if roots are in fact growing under the garage.

2.6.11. Manually, under direct arboricultural supervision, a 4m long trench was excavated along the south side of the garage wall. At a depth of 400mm and approximately 400mm from the wall a gas main serving the neighbouring property, Terrace Lodge, was encountered. The ducting for the gas main appeared to be relatively new (approximately 5-10 years old) indicating that the pipe was installed recently. From ground level to the depth of the gas main at 400mm very few roots encountered appeared to be from lime trees; the majority clearly belonging to the young cypress trees nos. 15 and 16 growing on the southern side of the footpath. At 400mm depth the base of the garage foundations had not yet been encountered.

2.6.12. Excavation continued to a maximum depth of 890mm at approximately the mid-point of the trench opposite tree no. 2; although typically the rest of the trench was excavated to a depth of 650-700mm where the base of the garage foundations were encountered.

2.6.13. At 650-700mm depth a layer of densely compacted rust coloured sand was encountered which coincided with the base of the foundations. Whilst it was possible to dig into this (hence the maximum depth of 890mm) no roots of any kind were encountered.

2.6.14. The few lime tree roots above 25mm in diameter that were encountered were measured and their orientations mapped. Following this investigation the trench was immediately refilled. The site monitoring report, excavation elevations and plan are attached at **Appendix 3**.

2.6.15. Lime trees nos. 5 and 6: For the same reasons as discussed above we have represented the RPAs of these trees as 80% of that recommended by BS 5837.

2.6.16. As the BS 5837 representation of the RPAs of these trees would show them extending into the north-west corner of the site we undertook another trial excavation to ascertain if roots did indeed enter the site. In two stages a 7m trench was manually excavated under direct arboricultural supervision along the inside of the boundary wall in the north-west corner of the site. The first stage was a 4m section in the north-west corner of the site and the second stage was a 3m section of excavation through the concrete foundations of the existing shed. **Photographs #3 and #4** below illustrate these points:



Photograph #3 – Showing the first stage of the excavation to a depth of 650mm with only one cypress root found



Photograph #4 – showing the second stage of the excavation to a depth of 700mm with no roots encountered

2.6.17. Both sections of trench were excavated to between 600 and 700mm, and the base of the boundary wall foundations were not encountered. The only tree root that was found in this trench coincided with a young cypress tree planted on the other side of the wall and this root appears to have found its way through the concrete. It is clear therefore that the foundations of the boundary wall are acting as a root barrier preventing the roots of the off-site lime trees (nos. 5 and 6) from entering the site.

2.6.18. The RPAs of all the other trees (nos. 7-8 and 10-16 and group G1) being specimens of less vigorous species, have all been represented as circles at 100% of the BS 5837 recommendation. These trees are either mature specimens of smaller growing trees (in the case of nos. 7 and 8), well established in areas with restricted root growth, or are young specimens (nos. 10-16 and group G1) with small RPAs.

2.6.19. In line with the above assessment and following the findings of the trial excavations, the RPAs of the lime trees nos. 1-4 have been trimmed out to the outside (southern) edge of the garage wall and the retaining wall of the existing sunken courtyard. Similarly the RPAs of lime trees nos. 5-6 have been trimmed out to the northern side of the boundary wall.

2.7. Arboricultural impact assessment and tree protection plan

2.7.1. The tree protection plan (TPP) presented at **Appendix 4** is based on the proposed site layout plan by Design NA Architects, drawing no. GLR 01 100 Plan Prop B and GLR 01 101 Plan Prop G.

2.7.2. The TPP identifies the trees which will be removed as a result of the scheme proposals because they are situated too close to proposed structures or surfaces to enable them to be retained. These are shown on the plan by means of **red crosses** and **broken red lines** around their canopy extents.

2.7.3. The TPP also shows how trees to be retained will be protected from damage during demolition and construction, and the measures identified are set out and described in the inlay boxes on the TPP. The implementation of, and adherence to, these measures can readily be secured by the use of appropriate planning conditions.

2.7.4. For the trees shown to be retained, all measurements for pruning specifications and percentage estimates of RPA incursions have been calculated using AutoCAD software.

2.7.5. Details of the impacts identified within these categories, and our assessment of their respective significance, are analysed in Sections 4 to 6 below.

2.7.6. On the basis of these findings, we have assessed the magnitude of the overall arboricultural impact of the proposals according to the categories defined in **Table 1** overleaf:-

Category	Description
High	Total loss of or major alteration to main elements/features/characteristics of the baseline, post-development situation fundamentally and permanently altered
Medium	Partial loss of or alteration to main elements/features/characteristics of the baseline, post-development situation will be substantially altered. Only reversible in the medium or long term
Low	Minor loss of or alteration to main elements/features/characteristics of the baseline, post-development changes will be discernible but the underlying situation will remain similar to the baseline and any loss or alteration can be reversed in the short or medium term
Negligible	Very minor loss of or alteration to main elements/features/characteristics of the baseline, post-development changes will be barely discernible, approximating to the 'no change' situation

Table 1: Magnitude of impacts⁶

⁶ Determination of magnitude based on DETR (2000) *Guidance on the Methodology for Multi-Modal Studies*, as modified and extended as adapted by *Guidelines for Landscape and Visual Impact Assessment* (The Landscape Institute with the Institute of Environmental Management and Assessment) Second Edition 2002. Further modified by SJA to include an element of 'reversibility and duration' as included in the Third Addition, 2013.

3. THE TREES

3.1. Survey findings

3.1.1. We surveyed a total of 15 individual trees, and one group of trees, with trunk diameters of 75mm and above, growing within or immediately adjacent to the site⁷. The numbers assigned to the trees in the tree survey schedule correspond with those shown on the appended tree location plan and tree protection plan.

3.1.2. The grounds of the site are dominated by tall and mature lime trees planted in rows along the southern boundary and off-site near the north-west corner of the site. The limes are adjacent to public areas but are better viewed from further away over the tops of surrounding buildings and on approaches along the criss-crossing roads to the west of the site. Other than the mature limes the tree cover is either that of small growing ornamental species such as the Japanese maple and magnolias or small fruit bearing trees such as the mulberry and apples in group G1.

3.2. The main arboricultural features

3.2.1. The main arboricultural features within or immediately adjacent to the site, whose removal we consider would have an adverse impact on the character and appearance of the local landscape, on amenity or on biodiversity, are as follows:

- the row of limes (nos. 1-4) growing in an elevated position along the southern boundary of the site; and
- the row of off-site lime trees (nos. 5-6 and an additional un-surveyed tree (not surveyed as it is too remote to have an influence on the site)) growing along the east side of Lower Terrace where it meets Upper Terrace, close to the north-west corner of the site. Tree nos. 5 and 6 are also mentioned in the Conservation Area's Streetscape Audit.

⁷ British Standard BS 5837: 2012, *Trees in relation to design, demolition and construction – Recommendations* recommends that all trees over 75mm stem diameter should be included in a pre-planning land and tree survey.

3.2.2. Two of the trees (lime no. 3 and elm no. 12) have been assessed as category 'U'. These are trees that cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. On site trees that need removing solely to accommodate a proposed development are not placed in this category. The category 'U' trees are indicated on the accompanying tree locations protection plans by **bracketed red** numbers.

3.2.3. There are no category 'A' trees and six category 'B' specimens (nos. 2, 4, 5, 6, 10 and 11). The remaining six individual trees and group G1 are assessed as category 'C', being either of low quality, very limited merit, only low landscape benefits, no material cultural or conservation value, only limited or short-term potential; or young trees with trunk diameters below 150mm; or a combination of these.

3.2.4. In accordance with BS 5837 the RPAs of the retained trees have been represented on the TPP by coloured lines specific to their categorisation. Category 'B' trees have RPAs represented by light blue lines, category 'C' trees have RPAs represented by grey lines and category 'U' trees have RPAs represented by unbroken red lines. Usually RPAs are represented as circles with radii calculated according to the BS 5837 (determined by measurements of the trees' trunk diameters). However, where it has been necessary to adapt the morphology of a tree's RPA, as set out in section 2.6 of this report, those circles have been 'trimmed-out' to existing features using AutoCAD software.

4. TREES TO BE REMOVED

4.1. Details

4.1.1. The development proposals, as shown on our TPP (**Appendix 4**), indicate that six individual trees (lime tree no. 1, magnolia tree no. 8, willow leaved pear no. 13, bay tree no. 14 and Leyland cypress tree nos. 15 and 16) and three apple trees from group G1 are to be removed either because they are situated within the footprint of the proposed development, because they are too close to proposed structures or surfaces to enable them to be retained, or because their removal is required for construction access.

4.1.2. All nine trees to be removed are assessed as category 'C'.

4.2. Assessment

4.2.1. It is necessary to remove the magnolia no. 8 as it is too close to the proposed orangery to be retained. This ornamental tree is just 6m in height and is only just visible from the road-side over the boundary wall on Lower Terrace. It is therefore of low landscape value. The canopy of the tree is suppressed on its south-east side by the Japanese maple (no. 7) and this has resulted in an asymmetrical canopy further reducing its landscape value. Its removal would not have a significant impact on the character or appearance of the Conservation Area and can adequately be mitigated through replacement planting closer to the boundary of the site which would add benefit to that character and appearance.

4.2.2. The removal of the willow leaved pear no. 13 and bay tree no. 14 is necessary for the excavation of the basement. These trees are small ornamental specimens, no more than 2.5m in height (the bay has been managed at this height) and provide some softening of the front of the property when viewed from the east. However, as they are so small they can readily be replaced without any loss of landscape value following completion of the development. Bay is not appropriate for this confined spot due to it being a vigorous species and the prolific growth it puts on in response to pruning. With the potential to grow to heights in excess of 15m a bay tree in this location would require regular management to prevent it out-growing its

position, and it is better suited for to a rear garden setting. On the other hand willow leaved pear is a less vigorous species with attractive foliage and spring blossom, it is ideally suited to its current setting and an attractive feature at the front of the property it will therefore be immediately replaced following the development on a 'like-for-like' basis.

4.2.3. The removal of the cypress trees nos. 15 and 16 is not necessary for the implementation of the development but is desirable in the interests of the character and appearance of the Conservation Area. Leyland cypress is very vigorous and being non-native and evergreen is not in keeping with the character of the area. It has the potential to grow very large very quickly and this would not be suitable in the current location. The proposals include the conversion of the area in which the cypress are growing into a cottage garden themed area which would be visible from and to the benefit of the public realm and Conservation Area. Retaining the cypress trees would be detrimental to this purpose.

4.2.4. The reason for removing three apple trees from the end of the rear garden is to allow access to the site from Lower Terrace through a temporary gap to be created in the boundary wall. Access to the site will be from Admirals Walk and Lower Terrace on a 50:50 basis. The location for the temporary gap in the wall has been chosen to minimise the arboricultural impact of the scheme. Whilst it does require the removal of three apple trees it allows for the retention of the magnolia no.10 and the mulberry tree which is also part of group G1. The apple trees to be removed are small (no more than 2m in height), barely visible from the road-side, and are readily replaceable without any loss of landscape value.

4.2.5. The willow leaved pear no. 13, the cypress trees nos. 15 and 16 and the apples from group G1 are all young specimens. As stated in paragraph 2.3.6. of this report BS5837 makes it clear that young trees, even those of good form and vitality, which have the potential to develop into good quality specimens when mature need not be a significant constraint on a site's development potential.

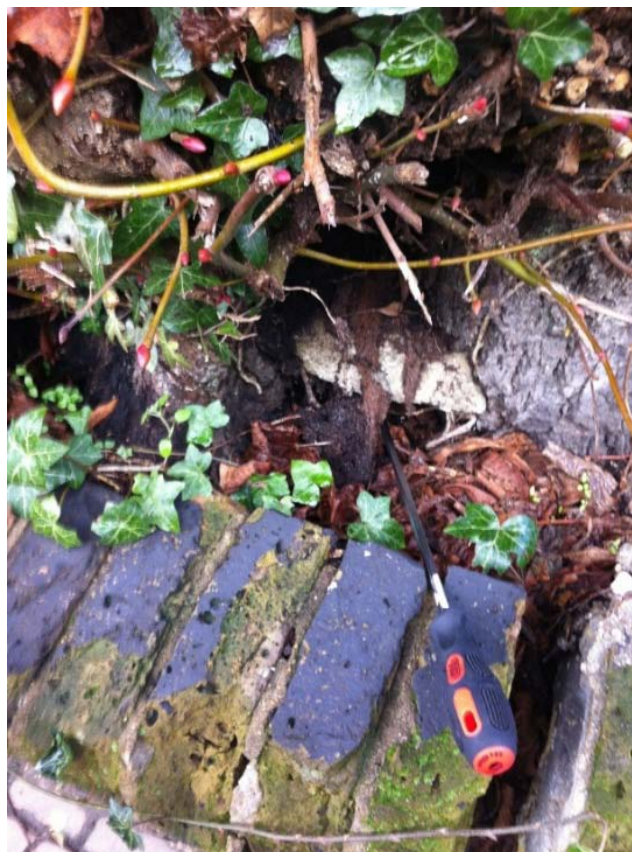
4.2.6. Whilst tree no.1 is part of one of the main arboricultural features of the site its removal is necessary for the repair to the boundary wall which adjoins the highway (this is discussed below). The significance of the arboricultural feature (as described

in paragraph 2.3.1.) comes from its collective value rather than the quality or condition of this individual specimen.

4.2.7. The reasons tree no. 1 has been assessed as category 'C' are twofold: the first being its structural condition and the second being the fact that it is not of high landscape value, being suppressed and an inessential component of the group. These two factors are discussed below.

4.2.8. Condition: As with the other lime trees in this group (nos. 2, 3 and 4) this tree was originally topped at 3m and then later topped at 6m and any intended pollarding regime has lapsed. Whilst there are structural defects typical of historic topping and sporadic management this is not sufficient in itself to categorise the tree as category 'C'. Of greater concern is the cavity at the base of the trunk on the south-west side and associated decay (a 400mm probe was inserted 200mm into a cavity)

Photograph #5 below illustrates this point:

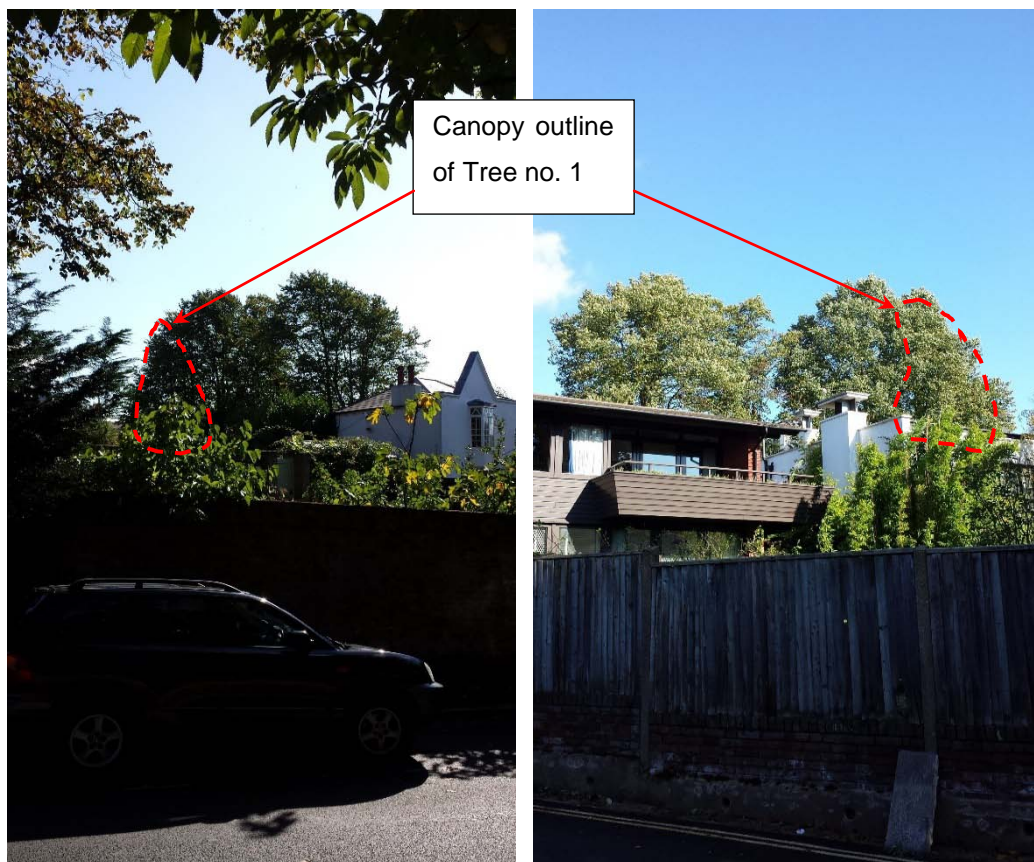


Photograph #5 – showing cavity at the base of the trunk and insertion of a probe

4.2.9. Although sounding the trunk with an acoustic mallet was problematic due to basal epicormic growth some difference in tone consistent with hollowing was noted on the south-west side in proximity to this wound.

4.2.10. Landscape value: lime tree no.1 is one of four similar lime trees growing in a line on the southern boundary of the property. Tree no. 1 is a similar size and growing just 4m to the east of tree no. 2. Whilst similar in height and stature, its crown is suppressed on the western side and it is sub dominant to tree no.2. As such the tree is not visible in views from the west as it is obscured by the other three trees.

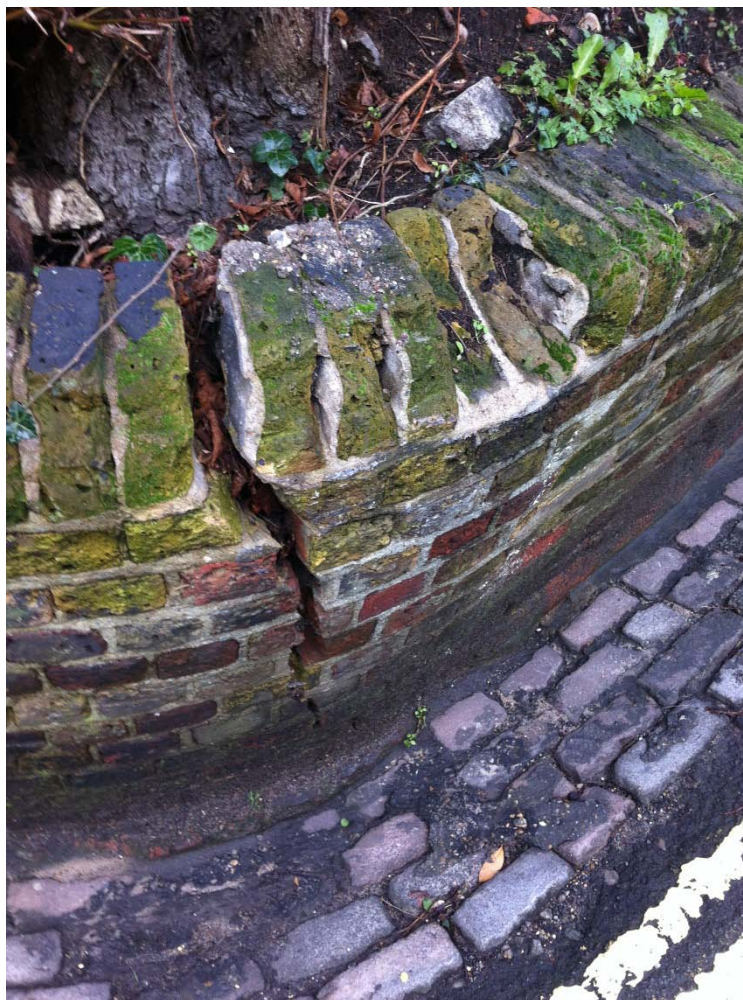
4.2.11. When viewed from the north and south it is clear that the removal of tree no.1 would not have a significant impact on the character and appearance of the Conservation Area, and moreover would improve the appearance and amenity value of the adjacent and more dominant tree no. 2. **Photographs 6 & 7** below illustrate this point:



Photographs 6 (N) & 7 (S) – showing views of the group of trees from the north and south illustrating how little of the overall canopy and group impact would be lost if tree no.1 is removed.

4.2.12. The combination of these factors has led to the tree being assessed as category 'C'. As stated above in paragraph 2.5.2. the retention of category 'C' trees will not normally be considered necessary where they impose a significant constraint on development. Due to the short term potential of tree no.1, its removal and replacement at this juncture would be the most appropriate way to manage this strip of land irrespective of the proposed development.

4.2.13. In addition to assessment as category 'C' the lime tree (no. 1) is causing damage to the highway boundary wall; the base of the trunk immediately abuts the retaining wall. The structural roots of the tree are pushing directly against the wall causing it to bulge and crack **Photograph #8** below illustrates this point:



Photograph #8 – showing the damage tree no. 1 is doing to the highway boundary wall.

4.2.14. The Engineering Service Department of the LPA sent a letter to the applicant dated 10th June 2015 stating that the boundary wall is a dangerous structure that requires partial demolition and rebuilding. In response to this letter the applicant's representative met with the Engineering Service Department to discuss the course of action to be taken and the timescales. At that meeting this application was brought to the Engineer's attention and that it includes the rebuilding of this part of the wall. The engineer was comforted by this but expressed a keenness for the wall to be repaired as soon as possible but was happy to have the situation monitored in the immediate future whilst the application is determined by the LPA. In order to repair this wall it would be impossible to avoid the removal of or damage to major structural roots on lime tree no. 1 in the process. Damage to major structural roots will render the tree potentially unstable and hence will result in risk to property or the highway.

4.2.15. The applicant has asked us to explore the possibility of retaining this tree albeit in a reduced form to minimise any potential risk of it failing due to root severance. We believe that this tree is highly unlikely to survive having structural roots severed for the repair of the wall, roots severed on the north side for the construction of the basement and extension, a reduction in its RPA and major crown reduction to reduce any risk of failure due to root severance. In the unlikely event it does not die or become unsafe as a result of these works it would never reach its current proportions again and the heavy reduction works would require regular management. A better solution would be to replace this category 'C' specimen with a new tree that has the potential to grow and develop into a mature specimen and provide long term benefit to the local landscape.

4.2.16. Some thought has been given to the effect on the adjacent retained specimens (lime no. 2 and elm no. 12) of removing lime tree no. 1, but it is our belief that they are not significantly asymmetric. Lime and elm are vigorous species and the average physiological condition of these specimens (the highest level of physiological condition attributed to a tree by SJA Ltd.) suggest that they will quickly adapt to the proposed removal without increased risk of failure due to new or increased wind exposure.

4.2.17. To help mitigate the reduction of landscape value proposed by the removal of tree no.1, the elm tree no. 12 will be retained. The elm is twin-stemmed from 1m, is heavily suppressed by tree no.1 and being an elm is likely to succumb to Dutch Elm Disease within the next few years. The tree has been assessed as category 'U' but it is healthy at present and growing vigorously. Therefore, the elm will continue to contribute to the landscape value of this portion of the site in the short term; at least long enough for a replacement tree to become established (see below for details on replacement trees).

4.2.18. Similarly the lime tree no. 3 is to be retained as it is not necessary to remove it in the context of the current proposals. This tree has been assessed as category 'U' as it is in poor condition. A shallow wound and associated decay were noted at its base on the north side possibly due to some historic root damage on that side. Also noted are a pair of historic pruning wounds approximately 400mm in diameter on the south side of the trunk at 3m; these wounds have decay associated with them and a 400mm probe could be inserted 300mm into each wound. The canopy of the tree is dying back in places and this has resulted in more dead wood in the tree's canopy, especially at the branch tips than is usual for a specimen of this size and age.

4.2.19. Tree no. 3 should be removed in the interests of good arboricultural practice as it cannot realistically be retained in its current or proposed context for more than 10 years. In the short term however the contribution this tree makes to the character of the conservation area is not insubstantial. The local community wish to retain as many trees as possible in the context of the proposed development and as it is not strictly necessary to remove the tree to implement the development it will be retained and protected in the short term to help soften the impact of the development. The condition of this tree will be monitored as the development progresses and following completion of the development. Should the tree continue to decline, as is expected, then its removal and replacement will be considered at that stage in a separate application.

4.2.20. As set out in paragraph 2.6.4. of this report, BS 5837 states that care should be taken to avoid misplaced tree retention. As the proposals only require a very minor incursion into tree no. 3's RPA and does not have any other impacts it will

not be subject to excessive pressure during demolition and construction. Whilst the removal of tree no. 3 is desirable in the interests of good practice in the medium and longer term, its retention for the duration of the development is not at odds with BS 5837.

4.2.21. At the pre-application stage the LPA Tree Officer advised that replacement trees would be required for the lime trees to be felled but that it would be preferable that the replacements are not lime so that this strip of land becomes more informal and diverse. When this advice was given it related to tree nos. 1 and 3; however, as it is proposed to keep tree no. 3, a replacement for tree no. 1 is all that would be required. It is clear that rows of lime trees are a strong feature in the landscape of the local area; the character of which is cherished by the local residents who have made it clear that if lime trees are to be removed they would like them to be replaced with lime trees (See the undated letter of Dr Vicki Harding – Tree Officer, Heath and Hampstead Society submitted in response to the previous application).

4.2.22. In order to satisfy both points of view the applicant intends to plant new lime trees to bolster the existing and retained lines of lime trees and a range of other medium to large trees native or naturalised species to improve the diversity of trees within the site.

4.2.23. Historical maps and aerial photographs of the site show that the rear boundary of Grove Lodge originally only extended as far as the internal dividing wall incorporated within the current rear garden. Previously the area of land, within which tree nos. 10 and 11 and group G1 are currently growing, would have been openly accessible to the public. We do not have access to any photographs which show lime trees within this area before the rear garden of Grove Lodge was extended, but it would seem logical based on the presence of the off-site row of lime trees (nos. 5 and 6) that the row of trees originally extended further to the south alongside Lower Terrace. The applicant intends to plant three new semi-mature lime trees in line with tree nos. 5 and 6 to bolster the existing feature and hence improve the character and appearance of the local area. **Figure 3** below is an example of a semi-mature Lime tree to give an impression of what is proposed. Lime trees can develop into tall elegant trees and are a favourite food source for native bee species.



Figure 3: Example of semi-mature lime tree to be planted in rear garden

4.2.24. The applicant also intends to bolster the linear feature of lime trees on the southern boundary of the site, alongside Admirals Walk. The intention is to replace lime tree no.1 with another lime to enhance the existing feature. However, due to the practicalities involved in planting semi-mature trees in the restricted site the replacement tree will not be as large as the one shown in **Figure 3**.

4.2.25. It is our opinion that the character and appearance of the Conservation Area will benefit from both the planting of lime trees from wider ranging views on approaches to the site along surrounding roads and over the tops of nearby dwellings and from the planting of smaller native or naturalised trees that provide interest and amenity value when viewed from Admirals Walk immediately adjacent to the bank.

4.2.26. As well as the altruistic benefits of enhancing the locally important lines of lime trees, the proposed planting of large growing species of tree, such as the proposed limes, will have the added benefit of creating high level screening of the rear of the property and the rear garden in views to the north-west, west and south-west.

4.2.27. Comments on the previous application expressed concern over the impact tree removals would have on the soil hydrology of the area and have presented evidence to show that the area has the tendency to be very wet and that flooding can occur. The removal of one lime tree from the group of trees growing alongside Admirals Walk is highly unlikely to impact on the local soil hydrology. Each of the four mature lime trees growing in this strip of land are competing with each other for water and resources. If one is removed, the retained trees will have access to and take up more water than they do at present. In this way there will not be any extra water as a result of the removal of a single tree. In addition it is intended that two hawthorn trees will be planted in this area as well as one new lime tree. The new trees will also be taking advantage of the resources and water available in this area. Therefore there is virtually no risk of excess water causing flooding as a result of the proposed removals. **Figure 4** below is an example of the proposed hawthorn trees; in May each year these trees produce abundant and fragrant white blossom with berries in the autumn/winter and as hawthorn is a native species they are good for birds and other wildlife.



Figure 4: Example of a hawthorn tree, size is approximately what is proposed.

4.2.28. Along Admirals Walk the proposals include increasing the height of the boundary retaining wall immediately adjacent to the road so that it matches and remains level with the boundary wall of Terrace Lodge; this would be more aesthetically pleasing. The proposals also include the re-landscaping of this area forming a 'cottage garden' between the boundary wall and the York-stone path along the southern flank wall of the new garage. The combination of lime trees (retained

and planted) and the hawthorn and cottage garden planting for the more immediate landscape will, in our view, provide significant benefit to the character and appearance of the Conservation Area in the immediate and wider landscapes.

4.2.29. As well as the lime and hawthorn trees discussed above the applicant intends to plant an evergreen magnolia, three large growing cherry trees such as the native wild cherry, and a walnut tree. Evergreen magnolia are not large trees but grow well in confined spaces, provide screening all year round and produce large attractive blossoms in the summer. Wild Cherry produces attractive blossom in the spring and berries in the late summer/autumn and is advantageous for local wildlife. Walnut as a species is not native but is naturalised (meaning it grows well in British soils and climate and can support native fauna) and is commonly found in parks and gardens throughout London. Planting a walnut tree would not be detrimental to the character and appearance of the Conservation Area. **Figures 5, 6 and 7** below give examples of an evergreen magnolia, a walnut tree and wild cherry tree at the size of planting and at the sort of size they can be expected to reach in the rear garden of the site.



Figure 5: planting and mature size of proposed evergreen magnolia



Figure 6: planting and mature sizes of proposed walnut tree



Figure 7: planting and mature sizes of proposed wild cherry tree

4.2.30. The applicant intends to plant the lime trees in the rear garden as semi-mature specimens (30-35cm girth and approximately 6m in height) with a view to creating instant impact. The lime tree to be planted adjacent to Admirals Walk and all other trees to be planted will be 'Heavy Standard' size (14-16cm girth and approximately 3.5-4m in height). Planting heavy standard trees, in our view, obtains the best balance between establishment success and immediate visual impact. Newly planted semi-mature trees can take a long time to become established and there is some risk of a specimen failing to become established at all. However, a comprehensive after-care management plan will be developed between the applicant and supplier to minimise this risk.

In summary of this section and of the impact of the proposed development in terms of overall tree cover **Table 2**, overleaf, shows that there is a net gain in the number of trees on the site.

Nos. of trees present on site	Removal of trees to facilitate development	No. and species of trees removed	Proposed replacement planting	Nos. and species of trees	Net
21 (including 6 individuals within group G1)	9	1 Common lime 8 Magnolia 13 Willow leaved pear 14 Bay 15-16 Leyland cypress G1 Three apple trees	11	4 Common lime 1 Evergreen Magnolia 3 Wild cherry 1 English walnut 2 Hawthorn 1 Willow leaved pear	+ 2 (+9.5%)

Table 2: showing the net gain in tree cover proposed by this development

4.2.31. As can be seen in **Table 2** the proposals include a net gain in overall numbers of trees by 9.5%. The improved tree cover will enhance the character and appearance of the conservation area. This is in line with the London Plan which states **“Wherever appropriate, the planting of additional trees should be included in new developments, particularly large-canopied species”**

4.2.32. In the light of these considerations, and taking account of the numbers, sizes and locations of the trees to be retained and planted, including those that are off-site, the felling of the trees and groups identified for removal will represent only a very minor alteration to the main arboricultural features of the site.

5. TREES TO BE PRUNED

5.1. Details.

5.1.1. The proposals do not require the pruning of any of the retained trees. The proposed location of the orangery does not conflict with the canopy extent of the off-site lime tree no. 5. The proposed position of the orangery in the withdrawn application would have required some minor reduction of overhanging limbs.

5.2. Assessment

5.2.1. As none of the proposed extensions or the orangery are within 2m of the extents of the canopies of trees to be retained, there will be adequate working space for construction close to trees, and a reasonable margin of clearance for future growth.

6. ROOT PROTECTION AREA INCURSIONS

6.1. Details

6.1.1. As can be seen on the TPP, excavation for the proposed basement retaining wall and associated hard surfacing and a small section of the foundations for the replacement garage will result in minor incursions into the modified RPAs of lime trees nos. 2, 3 and 4. It is also proposed to construct a path and steps from the existing gate in the west boundary wall leading from Lower Terrace into the garden; this will result in incursions into the RPAs of magnolia no. 10 and one of the apple trees of group G1. The extent of these incursions is shown in **Table 3** below.

Tree no.	Species	Description	Total incursion %
2	Common lime	Foundations for the ground floor level replacement garage	1.8%
3	Common lime	Retaining wall and new rear access path	0.2%
4	Common lime	Retaining wall and new rear access path	1.0%
10	Magnolia	Proposed footpath and steps leading from the existing entrance off Lower Terrace	18.0%
G1	Apple	Proposed footpath and steps leading from the existing entrance off Lower Terrace	5.0%

Table 3: Proposed excavation or disturbance of soil within RPAs

6.2. Assessment

6.2.1. As a result of our trial trench excavations (see **Appendix 3**) we have been able to deduce that there are no roots from the lime trees nos. 1-4 under the existing garage or from lime trees nos. 5 and 6 in the vegetable garden in the north-west corner of the site.

6.2.2. As can be seen in the trial dig report, elevation and plan (**Appendix 3**) the only lime tree roots encountered in the trial trench adjacent to the garage were orientated towards the foundations but diverted either east or west. The compacted sand at the base of the trench appeared to be the original substrate geology and is clearly a root barrier. We have concluded that there are no roots from the lime trees

under the garage and hence the proposed basement will not result in any harm to the retained trees. However the replacement garage at ground floor level extends beyond the footprint of the existing garage, and will result in a minor incursion into the RPA of lime trees nos. 2, 3 and 4.

6.2.3. The largest of the incursions proposed by the replacement garage results in an incursion of 1.8% into the RPA of lime tree no. 2. The potential impacts of these incursions can be satisfactorily resolved by excavation within these areas being undertaken manually, under the direct control and supervision of an appointed arboricultural consultant, so that any over dig into the RPA is avoided, and any roots encountered can be treated appropriately.

6.2.4. As a species lime has been identified as moderate-good at tolerating root disturbance and shows considerable resilience to 'contractor pressure'⁸. As tree nos. 2 and 4 are of average physiological condition, there is no reason to suggest that they will not be able to tolerate the cutting of roots within these small sections of their RPAs.

6.2.5. Tree no. 3 is in low physiological condition and is therefore less predisposed to tolerating RPA incursions. However, as the proposed incursion will affect less than 1% of the tree's RPA, and considering the relative tolerance of the species to root pruning and disturbance there is no reason to suspect the proposals would have a significant detrimental impact on this specimen.

6.2.6. The proposals do not include any alteration of levels to any of the land to the south of the existing garage (i.e. the strip of land, between the existing garage and Admirals Walk, within which the lime trees nos. 2-4 are currently growing). However, in places where the line of the new garage is entirely within the footprint of the existing garage this will involve importing new top-soil to accommodate any difference in level and therefore increasing the overall volume of soil available for the retained trees and those that are to be planted. The imported soil will only be used to

⁸ MATHENY, N. P. and CLARK, J. R. (1998). Trees and Development. *International Society of Arboriculture*.

fill any gaps between the line of the new garage and that of the existing garage, it will not be used to increase soil levels in this part of the site.

6.2.7. The proposals include increasing the height of most of the existing boundary wall so that it ties in with the level of the boundary wall at Terrace Lodge. The proposed increase in height of the boundary wall along Admirals Walk will not require additional fill as it is already retained by an informal stone structure. The proposals only require the removal and replacement of the existing retaining structure with bricks to match the existing as closely as possible and only to the height of the boundary wall of Terrace Lodge. **Photograph #9** overleaf illustrates this.



Photograph #9: showing existing retaining structure to be replaced with bricks matching the existing (only the dark stone above the existing wall is being replaced)

6.2.8. At first glance the proposed incursion of the footpath and steps leading from the existing entrance into the site from Lower Terrace into the RPA of magnolia no. 8's RPA appears significant at 18%. However, it is less than the maximum 20% incursion into currently unsurfaced ground recommended by BS 5837. The proposed steps and path will only require shallow foundations and will be consistent level with the existing ground levels. Therefore, whilst the path and steps cover 18% of the RPA they will not require severance of all the tree's roots in this area. Magnolia has been identified as moderate at tolerating root pruning and disturbance and seeing as this specimen is still young and growing vigorously and it is in average physiological

condition there is little reason to suspect it will not be able to tolerate the construction of this new path and steps within its RPA.

6.2.9. Accordingly, subject to implementation of the above measures, and taking into account the age, current physiological condition and tolerance of disturbance of the affected specimens, we consider that no significant or long-term damage to their root systems or environments will occur as a result of these incursions.

6.2.10. The necessary precautions to prevent other incursions into the RPAs of retained trees and to protect them during demolition and construction can be assured by the erection of appropriate protective fencing as shown on the TPP at **Appendix 4.**

7. CONCLUSIONS

7.1. Summary

7.1.1. Our assessment of the arboricultural impacts of the scheme concludes that nine trees will be removed (six individual specimens and three from within group G1). Lime tree no. 1 which forms part of one of the main arboricultural features of the site is to be removed. This is necessary for the partial demolition and repair of the boundary wall but would also be necessary for the implementation of the development. The other trees to be removed are the magnolia tree no.8 which is growing internally within the site and has low landscape value; the young specimens nos. 13, 15-16 and those from group G1 and the bay tree which is not a suitable species for its current location. However, the proposed felling of the trees identified for removal will represent only a very minor alteration to the main arboricultural features of the site.

7.1.2. The proposed planting of 11 new trees will result in a net increase in the number of trees on the site by plus two (9.5%) and ultimately will enhance the character and appearance of the Hampstead Conservation Area. The proposed planting will also help mitigate the proposed removals, improve the diversity of species on site with added landscape and ecological benefits and the net increase in tree cover in line with 'The London Plan'.

7.1.3. The incursions into the RPAs of trees to be retained are minor, and subject to implementation of the measures recommended on the TPP and set out at **Appendix 1**, we consider that no significant or long-term damage to their root systems or environments will occur as a consequence of the proposed development.

7.2. Compliance with national planning policy

7.2.1. As the proposals will not involve the removal of any ancient, veteran or "aged" trees, they comply with paragraph 118 of the NPPF.

7.2.2. As the proposed development will only result in a very minor alteration to one of the main arboricultural features of the site, and thereby will not have a significant adverse impact on the arboricultural character and appearance of the local

landscape or the conservation area, or on trees of significant amenity or biodiversity value, it complies with national planning policy guidance.

7.3. Compliance with local planning policies

7.3.1. As all of the trees of significant landscape value are being retained with the exception of the lime tree no. 1 which is to be replaced, and as there will be a net increase in the number of trees on the site the proposals comply with Policy 7.21 of the London Plan.

7.3.2. As the proposals will retain and protect all of the trees of landscape value (with the exception of lime tree no. 1 which is of moderate landscape value and limited potential) and will include planting of new trees for the future benefit of the appearance of the Conservation Area and include the re-landscaping of the strip of land along Admirals Walk with the creation of a new cottage garden they comply with Policy CS14 of the London Borough of Camden's Core Strategy.

7.3.3. As the proposals retain the entire garden area within Grove Lodge, include new native and naturalised tree plantings, include new trees visible from and alongside the streets and extend an existing line of lime trees they comply with Policy CS15 of the Core Strategy.

7.3.4. As the proposals consider in detail the existing trees (through the discussion contained within this report) they comply with Policy DP24 of the Camden Development Policies.

7.3.5. Whilst the trees and garden at Grove Lodge are not identified as contributing to the character of the Hampstead Conservation Area they are preserved and enhanced nonetheless and therefore comply with Policy DP25 of the Development Policies.

7.3.6. The Hampstead Conservation Area Appraisal does not include a list or plan of trees that are considered important to the character of the area, and only tree nos. 5 and 6 are mentioned in the Streetscape Audit. As such the proposals are not at odds with the Character Appraisal. However, opinions expressed in response to the previous application is that the local residents consider the lines of lime trees to be important features that contribute positively to the character of the area. These

opinions have been observed and respected by retaining as many of the existing lime trees as possible and planting four new specimens. Therefore the scheme does not detract from the character and appearance of the Conservation Area as viewed by the residents who live within it.

7.4. Conclusion

7.4.1. On the basis of our assessment, we conclude that the arboricultural impact of this scheme is of low magnitude, as defined according to the categories set out in **Table 1** of this report; and that it complies with both local and national planning policy and guidance.

July 2015

APPENDIX 1

Tree Survey Schedule

Tree Survey Schedule

Grove Lodge, Admirals Walk, London

February 2014

Tree Survey Schedule: Explanatory Notes

Grove Lodge, Admirals Walk, London

This schedule is based on a tree inspection undertaken by Frank Spooner of Simon Jones Associates Ltd., on Wednesday 19th February 2014, Thursday the 23rd May 2013 and Thursday 7th May 2015. Weather conditions at the time were clear, dry and bright. Deciduous trees were in full leaf.

The information contained in this schedule covers only those trees that were examined, and reflects the condition of these specimens at the time of inspection. We did not have access to the trees on site; observations are thus confined to what was visible from surrounding public areas.

The trees were inspected from the ground only and were not climbed, and no samples of wood, roots or fungi were taken. A full hazard or risk assessment of the trees was not undertaken, and therefore no guarantee, either expressed or implied, of their safety or stability can be given.

Trees are dynamic organisms and are subject to continual growth and change; therefore the dimensions and assessments presented in this schedule should not be relied upon in relation to any development of the site for more than twelve months from the survey date.

1. Tree no.

Given in sequential order, commencing at "1". Numbers correspond with numbering on topographical survey plan.

2. Species.

'Common names' are given, taken from MITCHELL, A. (1978) A Field Guide to the Trees of Britain and Northern Europe.

3. Height.

Estimated with the aid of a hypsometer, given in metres.

4. Trunk diameter.

Trunk diameter measured at approx. 1.5m above ground level; or where the trunk forks into separate stems between ground level and 1.5m, measured at the narrowest point beneath the fork. Given in millimetres.

5. Radial crown spread.

The linear extent of branches from the base of the trunk to the main cardinal points, rounded up to the closest halfmetre, unless shown otherwise. In the cases of small trees with reasonably symmetrical crowns, a single averaged figure is quoted.

6. Crown break.

Height above ground and direction of growth of first significant live branch.

7. Crown clearance.

Distance from adjacent ground level to lowest part of lowest branch, in metres.

8. Age class.

Young: Age less than 1/3 life expectancy

Semi-mature: 1/3 to 2/3 life expectancy

Mature: Over 2/3 life expectancy

Over-mature: Mature, and in a state of decline

Veteran: Surviving beyond the typical age range for species

9. Physiology.

Health, condition and function of the tree, in comparison to a normal specimen of its species and age.

10. Structure.

Structural condition of the tree – based on both the structure of its roots, trunk and major stems and branches, and on the presence of any structural defects or decay.

Very good: No significant physiological or structural defects, an upright and reasonably symmetrical structure; a particularly good example of its species.

Good: No significant physiological or structural defects, and an upright and reasonably symmetrical structure.

Moderate: No significant pathological defects, but a slightly impaired physiological structure; however, not to the extent that the tree is at immediate or early risk of collapse.

Indifferent: Significant physiological or pathological defects; but these are either remediable or do not put the tree at immediate or early risk of collapse.

Poor: Significant and irremediable physiological or pathological defects, such that there may be a risk of early or premature collapse.

Hazardous: Significant and irremediable physiological or pathological defects, such that there is a risk of imminent collapse.

11. Comments.

Where appropriate comments have been made relating to:

- Health and condition
- Safety, particularly close to areas of public access
- Structure and form
- Estimated life expectancy or potential
- Visibility and impact in the local landscape

12. Category.

Based on the British Standard "Trees in relation to design, demolition and construction - Recommendations", BS 5837: 2012, Table 1, adjusted to give a greater weighting to trees that contribute to the character and appearance of the local landscape, to amenity, or to biodiversity.

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.

- 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 (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.

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

- (1) Trees that are particularly good examples of their species, especially if rare or unusual.
- (2) Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.
- (3) Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

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

- (1) Trees that might be included in category 'A', but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and minor 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.
- (2) Trees present in numbers, usually growing as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals; or trees present in numbers but situated so as to make little visual contribution to the wider locality.
- (3) Trees with material conservation or other cultural value.

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.

- (1) Unremarkable trees of very limited merit or of such impaired condition that they do not qualify in higher categories.
- (2) 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 landscape benefits.
- (3) Trees with no material limited conservation or other cultural value.

TREE SURVEY SCHEDULE

Grove Lodge, Admirals Walk, London

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
1	Common lime	15.5m	690mm	5.5m N 6m E 6m S 2m W	3m	2m N 3m E 2.5m S 2m W	Over-mature	Average	Indifferent	Restricted rooting; some moderate decay in base; some hollowing evident when sounded up to approx. 2m up trunk; main stem historically pollarded at 3m; four stems again pollarded at approx. 6m; crown then reduced again at approx. 15m; vigour and vitality good; majority of foliage is on epicormic shoots which arise from ground level all the way up the trunk, stems, branches and crown; of moderate quality and landscape value; but of short-term potential only.	C (2)
2	Common lime	16m	est. 650mm	6m N 5m E 10m S 6m W	3m	5m N 9m E 8m S 8m W	Mature	Average	Moderate	Restricted rooting; trunk leans at approx 20° from base to 3m; bifurcates at 3m; pruning wounds between 3 and 6m on stems on south side of tree, each wound approx. 20cm diameter, occluding well; pollarded at 6m; no evidence of recent management; some epicormic growth from base to 6m; some epicormic throughout crown; crown generally healthy; only very minor deadwood; of moderate quality and high landscape value; of medium-term potential.	B (12)
3	Common lime	14m	est. 550mm	5m N 4m E 5m S 2.5m W	6m	5m N 8m E 5m S 4m W	Over-mature	Low	Indifferent	Restricted rooting; large pruning wounds, approx. 40cm diameter, partially occluded at 3m; substantial internal decay at this point; other pruning wounds up to 6m, with some associated decay; not possible to reach area to sound with acoustic mallet; tree historically pollarded at 6m; substantial deadwood throughout crown; poor extension growth; majority of crown formed by epicormic growth; tree appears to be in decline; epicormic growth significant at base of tree up main stem to crown break; of low quality moderate landscape value; but of little potential.	U
4	Common lime	16.5m	590mm	6m N 6m E 9m S 5m W	3m	8m N 7m E 12m S 8m W	Mature	Average	Moderate	Restricted rooting; some epicormic growth from base; crown breaks at 3m where two large stems have been removed; partial occlusion; minor decay; size of wounds approx. 30cm; crown historically topped or pollarded at 6m; re-growth has been good; crown is healthy; good extension growth; of moderate quality and high landscape value; of medium-term potential.	B (2)
5	Common lime	22m	770mm	11.5m N 9.5m E 10.5m SE 7m S 7.5m W	2m	2m N 2m E 2m S 2m W	Mature	Average	Moderate	Off site tree; historically topped at 3m and again at 7m, crown developed from here; rooting restricted by adjacent road; much epicormic growth on trunk; of moderate quality and high landscape value; of medium-term potential.	B (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
6	Common lime	20m	710mm	7m N 6.5m E 7m SE 3m S 9m W	2.5m	2.5m N 4m E 3m S 5m W	Mature	Average	Moderate	Off site tree; historically topped at 3m and again at 7m, crown developed from here; rooting restricted by adjacent road; asymmetrical crown as suppressed by adjacent specimens; much epicormic growth on trunk; of moderate quality and high landscape value; of medium-term potential.	B (2)
7	Japanese maple	7m	300mm	3m	.5m	1m	Mature	Average	Good	just visible from roadside; of high quality but low value; of medium-term potential.	C (1)
8	Magnolia	6m	300mm	3m	.5m	1m	Mature	Average	Moderate	just visible from roadside; of moderate quality and of medium-term potential; but of low landscape value.	C (12)
10	Magnolia	7m	200mm	2.5m	1m	1.5m	Young	Average	Good	Small ornamental tree; of high quality and moderate landscape value; of medium term potential.	B (1)
11	Box elder	7m	150mm	2.5m	1m	1m	Young	Average	Moderate	Small ornamental tree; small recently planted specimen; of moderate quality and landscape value; of medium-term potential.	B (1)
12	Elm	7.5m	210mm @1m	4m N 5.5m NE 2.5m E 0.5m S 0.5m W	1m	1m	Young	Average	Indifferent	Twin-stemmed from 1m; asymmetric crown with bias towards NE and N due to suppression from adjacent lime tree; of moderate quality and landscape value but of short term potential.	U
13	Willow leaved pear	2m	150mm	1m	1m	0.25m	Young	Average	Good	Of moderate quality and landscape value and of medium term potential	C (1)
14	Bay	2.5m	150mm	1m	0.25m	0.25m	Semi-mature	Average	Good	Of moderate quality and landscape value and of medium term potential	C (1)
15-16	Leyland cypress	up to 4.5m	200mm	1.5m	0.25m	0.5m	Semi-mature	Average	Good	Remnants of a line of similar trees lining the existing path; inappropriate species choice for this location in the longer term; of moderate quality and landscape value but of long term potential.	C (2)
G1	Various	2m to 4m	50mm to 100mm	1.5m	1m	1m	Young	Average	Good	Species include apple and mulberry; small ornamental trees; recently planted and readily replaceable; just visible from roadside ; of high quality and moderate landscape value; of medium term potential.	C (1)

Root Protection Areas (RPAs)

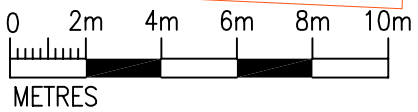
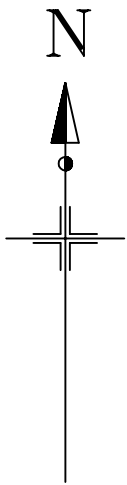
Root Protection Areas have been calculated in accordance with paragraph 4.6.1 of the British Standard 'Trees in relation to design, demolition and construction – Recommendations', BS 5837: 2012. This is the minimum area which should be left undisturbed around each retained tree. RPAs are portrayed initially as a circle of a fixed radius from the centre of the trunk; but where there appear to be restrictions to root growth the circle is modified to reflect more accurately the likely distribution of roots.

<i>Tree No.</i>	<i>Species</i>	<i>RPA</i>	<i>RPA Radius</i>
1	Common lime	215.4m ²	8.28m
2	Common lime	191.1m ²	7.8m
3	Common lime	136.8m ²	6.6m
4	Common lime	157.47m ²	7.08m
5	Common lime	268.2m ²	9.24m
6	Common lime	228.0m ²	8.52m
7	Japanese maple	40.7m ²	3.6m
8	Magnolia	40.7m ²	3.6m
10	Magnolia	18.1m ²	2.4m
11	Box elder	10.2m ²	1.8m
12	Elm	19.95m ²	2.52m
13	Willow leaved pear	10.2m ²	1.8m
14	Bay	10.2m ²	1.8m
15-16	Leyland cypress	18.1m ²	2.4m
G1	Fig	7.1m ²	1.5m

APPENDIX 2

Tree Location Plan

LIST OF TREES (For full details, see SJA Tree Schedule.)				
No.	Species	Height	Trunk diameter	B.S. Category
1	Common lime	15.5m	690mm	C (2)
2	Common lime	18m	est. 650mm	B (12)
3	Common lime	14m	est. 550mm	U
4	Common lime	16.5m	590mm	B (2)
5	Common lime	22m	770mm	B (2)
6	Common lime	20m	710mm	B (2)
7	Japanese maple	7m	300mm	C (1)
8	Magnolia	6m	300mm	C (12)
10	Magnolia	7m	200mm	B (1)
11	Box elder	7m	150mm	B (1)
12	Elm	7.5m	210mm @1m	U
13	Willow leaved pear	2m	150mm	C (1)
14	Bay	2.5m	150mm	C (1)
15-16	Leyland cypress	up to 4.5m	200mm	C (2)
G1	Various	3m to 4m	50mm to 100mm	C (1)



1 : 200 @A2

SJA trees ARBORICULTURAL PLANNING CONSULTANTS			
Project:	Grove Lodge, Admirals Walk, London		
Client:	Mr Caspar Berendesen		
Drawing:	TREE LOCATIONS PLAN		
Drawing No:	SJA TL 14042-05	Revision No:	
Based On:	14GLR PI Site Existing		
Drawn By:	Frank S	Date:	May 2015
Tel:(01737) 813058	Fax:(01737) 816140	Scale:	1:200 @ A2
			sja@sjatrees.co.uk
Tree nos.:	● 1	Category "U" trees:	● [12]
		Tree canopies:	
<small>For further information refer to the SJA Tree Survey Schedule Do not scale from this drawing; please check all dimensions on site, and notify us of any discrepancies. Simon Jones Associates cannot be held responsible for inaccuracies in the topographical plan on which this drawing is based. © Simon Jones Associates Ltd, 2015 This drawing is copyright and may not be used or changed without the written consent of Simon Jones Associates.</small>			



APPENDIX 3

Trail Pit Report



SIMON JONES ASSOCIATES Ltd.
Arboricultural Consultants

ARBORICULTURAL SUPERVISION RECORD

<i>Client:</i>	Caspar Berendsen
<i>Site:</i>	Grove Lodge, Admirals Walk, NW3 6RS
<i>Development:</i>	

Date. **Thursday, 18 January 2014**

Supervisor: Ken Scarlett

On site: 0920-1300

Purpose:

Supervision of exploratory trenches to ascertain root activity up to root barriers (walls and foundations) and below.

Narrative:

Two exploratory trenches have been dug;

1. This first of which was in the rear garden next to tree nos. 5 & 6. The trench was dug by hand along the wall on the northwest corner.



Photograph 1
Area of trench one.

The trench was dug to a depth of 750mm below existing soil height and no roots were exposed apart from one 10mm diameter root running north to south from a recently planted cypress tree.



Photograph 2
Trench one showing no root activity from tree nos. 5 or 6.

2. Trench two is to the front of the property running east to west along the south facing wall of the garage, north of tree no.2 and it 4m in length.



Photograph 3
Trench two has been dug between tree no.2 and the south aspect of the garage wall.

At first glance there seems to be a large amount of roots in this area, however there is a shallow horizon up to 200mm in depth of roots from more recently planted cypress trees. At 400mm in depth there is a gas pipe supplying the house and running east to west, this may skew the root survey as this impact may have affected the roots in the past.



*Photograph 4
Gas pipe running alongside the garage wall.*

The contractors excavated by hand down to a maximum depth of 890mm, which exposed the base of the foundations at the mid point of the trench and a horizon of dense red sand which appears to be the original substrate geology level.

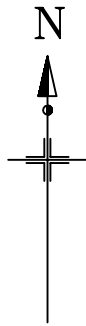


*Photograph 5
Sand found at below foundation level 800mm.*

The roots were mapped and a tree root locations plan has been produced document SJA TRLP 14042-01. It was noted that what roots were evident seemed to grow up to the wall root barrier and then divert.



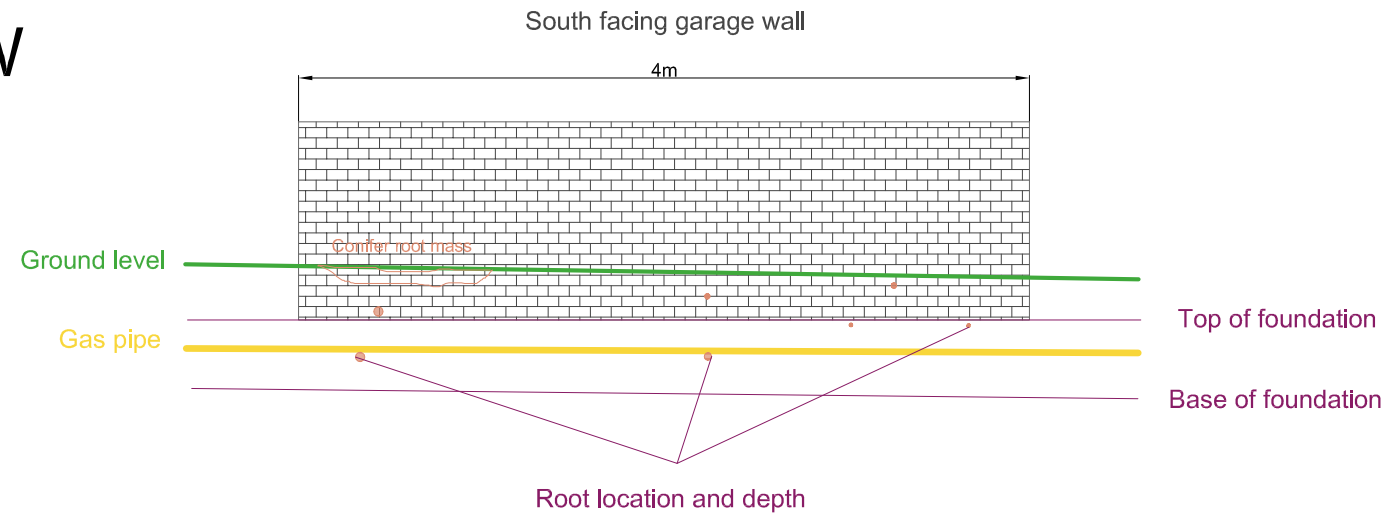
Photograph 6
The roots diverting at the root barrier interface.



Elevations

W

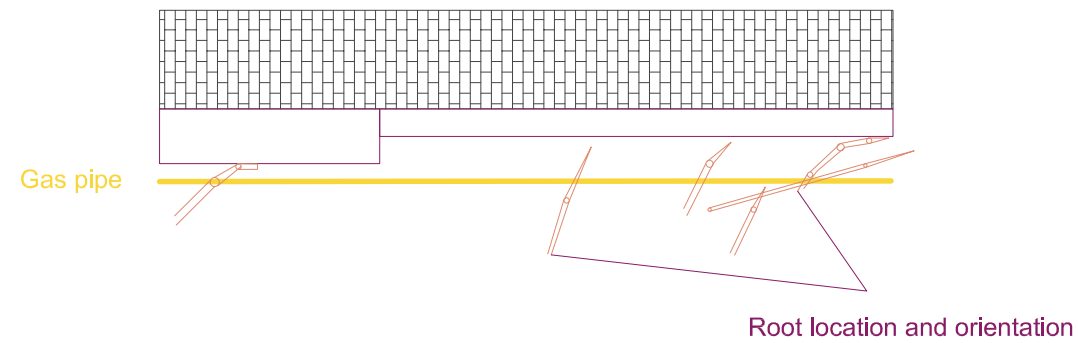
E



Plan

W

E

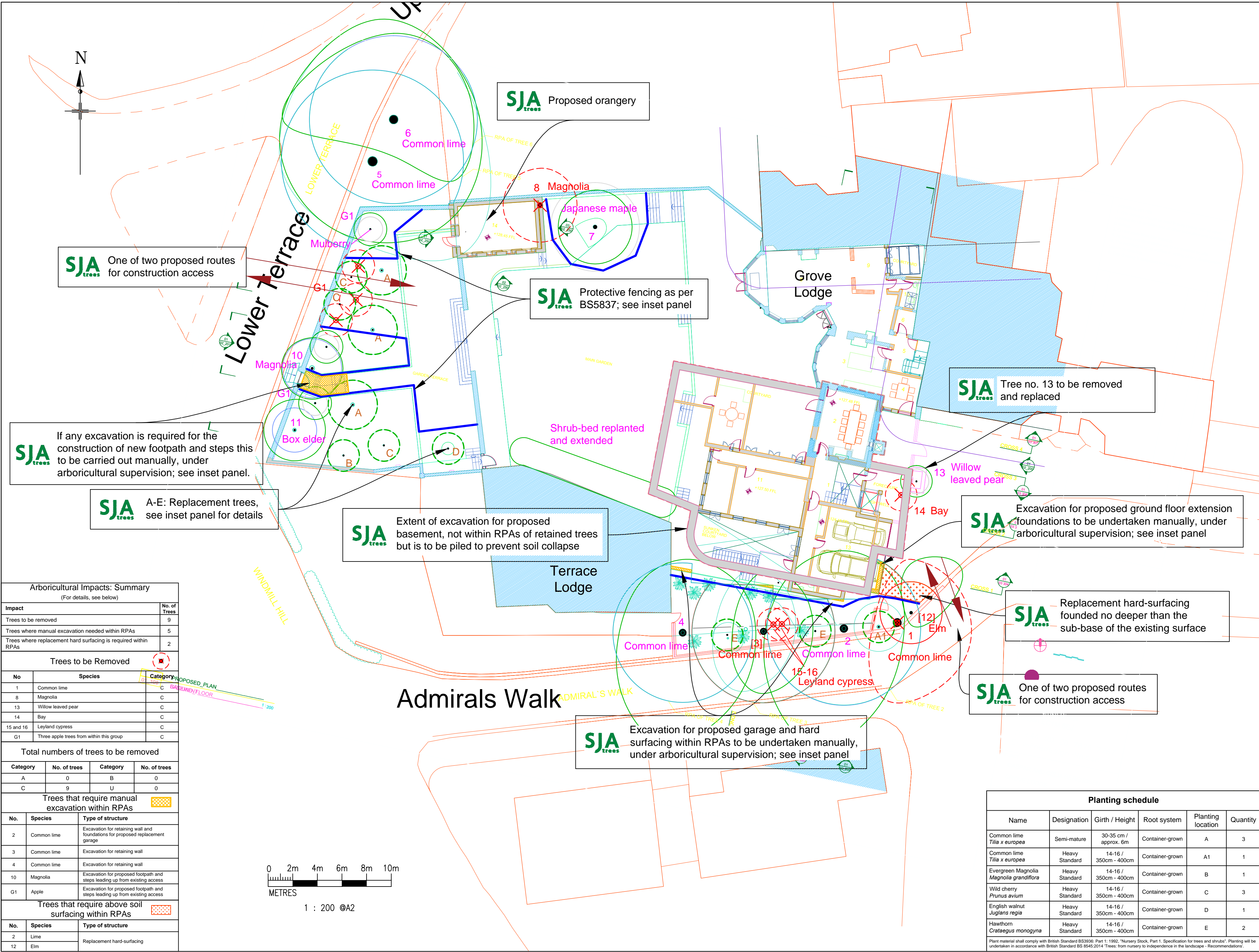


T2

Simon Jones Associates Ltd. 		
Project:	Grove Lodge, Admirals Walk, London	
Client:	DNA Architects	
Drawing:	Trial dlg elevation and plan	
Drawing No:	SJA RZ 14042-01	Revision No:
Based On:	Site supervision	
Drawn By:	Date:	Scale:
KS/FPS	Sept, 2014	NTS
Tel:(01737) 813058	Fax:(01737) 816140	sja@sjatrees.co.uk
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APPENDIX 4

Tree Protection Plan



Protective Fencing

To comprise 2m tall 'Heras' welded mesh panels on rubber or concrete feet. The panels shall be joined together with two anti-tamper couplers, installed so that they can only be removed from inside the fence. Distance between the couplers should be at least 1m and should be uniform throughout the fence. Panels should be supported (where possible) on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (Figure 3a). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts shall be mounted on a block tray (Figure 3b).

Figure 3 Examples of above-ground stabilizing systems

a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

TREE PROTECTIVE FENCING as shown in BS 5837: 2012, Section 6.2.2 & Figure 3.

Manual Excavation

Within root protection area of tree nos. 2, 3, 4, 10 and G1 the first 750mm depth of any excavation, for proposed foundations, shall be undertaken by hand under arboricultural supervision. The soil will be loosened with a pick or fork, and then will be cleared from roots with a compressed air soil pick. All roots will be cut cleanly with a hand saw or secateurs. The edge of the excavation closest to the trees will be covered with hessian sacking to prevent drying out, and if necessary be shuttered with an appropriate material to prevent soil collapse. Where appropriate, the soil beneath this depth may be sheet piled; and deeper excavation may be undertaken by a machine provided it works from outside the root protection areas.

Replacement Surfacing

Replacement hard surfacing within the RPAs of tree nos. 2 and 12 to be constructed in accordance with section 7.4 of BS 5837: 2012. Trees in relation to design, demolition and construction - Recommendations. Other than the careful removal, using hand tools, of the existing wearing course and sub-base, surfacing will be installed above existing soil level, so that the soil is not disturbed and no roots are severed.

Arboricultural Supervision

The arboricultural consultant will directly supervise all construction works that have to be undertaken within root protection areas. These include:

1. Location of protective fencing and ground protection.
2. Demolition of existing garage and retaining wall where these abut RPAs.
3. Excavations, for proposed foundations and retaining wall within the RPAs of tree nos. 2, 3, 4, 10 and G1.
4. Resurfacing of existing hard-surfacing within the RPAs of tree nos. 2 and 12.

ARBORICULTURAL PLANNING CONSULTANTS

Project: Grove Lodge, Admirals Walk, London

Client: Mr Caspar Berendsen

Drawing: TREE PROTECTION PLAN

Drawing No:	SJA TPP 14042-06c	Revision No:	C
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Based On: dNA GLR 01 101 Plan Prop G & 100 Plan Prop B

Drawn By:	FPS/MDJ	Date:	July 2015	Scale:	1:200 @ A2
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Tel:(01737) 813058 Fax:(01737) 816140 sja@sjatrees.co.uk

Tree nos.:	● 5	Category 'U' trees:	● [12]	Canopies of trees to be retained:	
Category 'B' RPA:		Category 'C' RPA:		Category 'U' RPA:	
Trees to be removed:		Protective fencing:		Manual excavation:	
Above soil surfacing:		Proposed tree planting:		Extent of proposed basement:	

For further information refer to the SJA Tree Schedule

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This drawing is designed to reflect only the principles of layout and for design insofar as these relate to the protection of trees to be retained, and should NOT be read as a definitive engineering or construction method statement. Reference should be made to the architect or structural engineer, as appropriate, over any matters of construction detail or specification, or any engineering standards or regulatory requirements relating to proposed structures, hard surfaces or underground services.

Plant material shall comply with British Standard BS9336: Part 1: 1992, 'Nursery Stock, Part 1. Specification for trees and shrubs'. Planting will be undertaken in accordance with British Standard BS 8545:2014 'Trees: from nursery to independence in the landscape - Recommendations'.