APPENDIX 1
Tree Survey Schedule

SJA trees
ARBORICULTURAL PLANNING CONSULTANTS

17 CROSS ROAD
TADWORTH
SURREY KT20 5ST

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Principal: Simon R. M. Jones Dip. Arb. (RFS), F. Arbor. A., Arb. Assoc. Registered Consultant
Associate: Mark Mackworth-Praed BA (Cantab), M.Sc., F. Arbor. A., Arb. Assoc. Registered Consultant

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 Thursdat 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 clear-ance	Age class	Physio - logy	Structure	Comments	Cate gory
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)

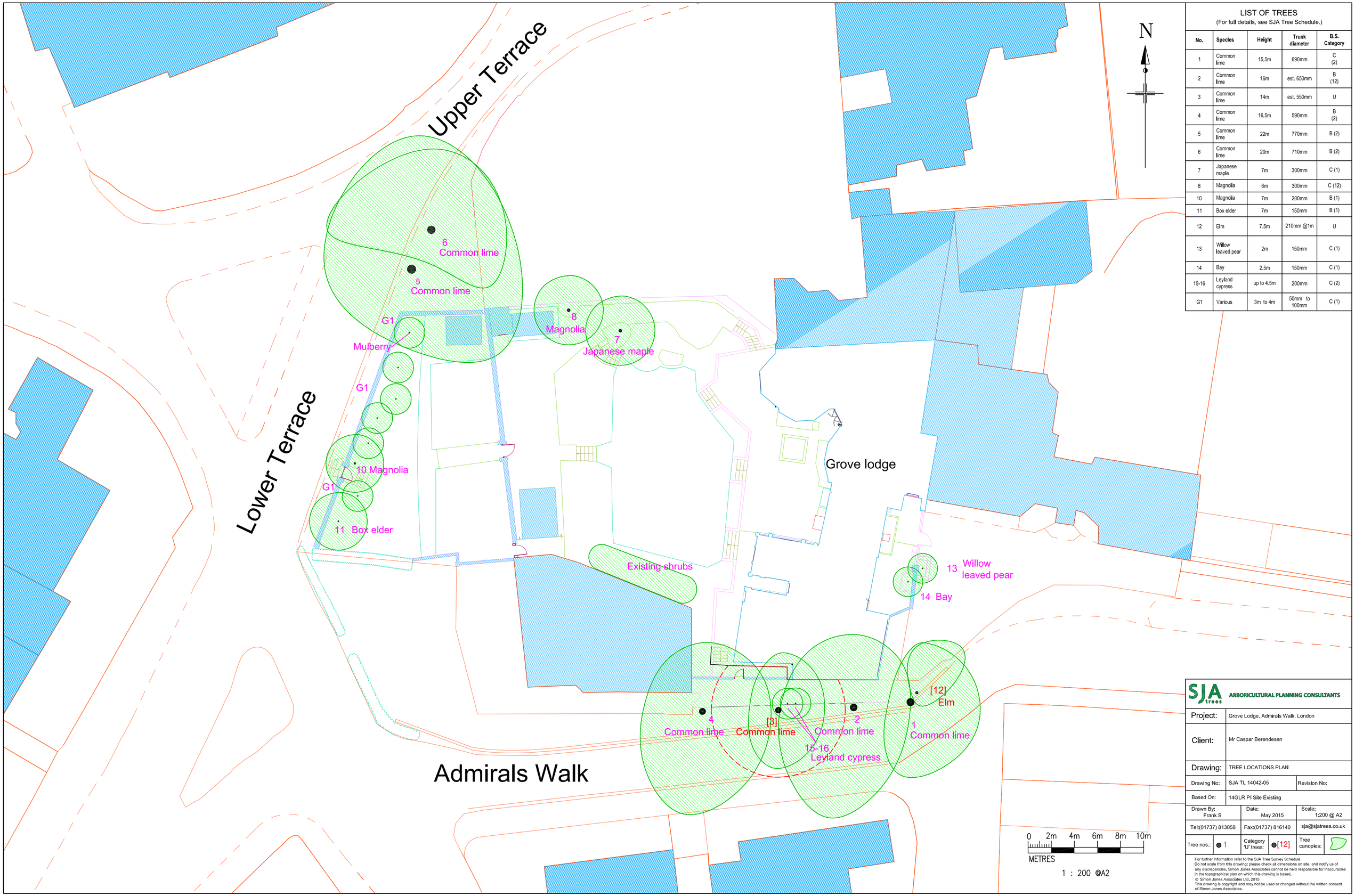
No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clear-ance	Age class	Physio - logy	Structure	Comments	Cate gory
6	Common lime	20m	710mm	7m N 6.5m E 7m SE 3m S 9m W	2.5m	2.5m N 4m E 3m S 5m W	Mature	Average	Moderate	Off site tree; historically topped at 3m and again at 7m, crown 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 potetnial.	U
13	Willow leaved pear	2m	150mm	1m	1m	0.25m	Young	Average	Good	Of moderate quality and landscape value and of medium term potetnial	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 potetnial	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; inapopriate species choice for this location in the longer term; of moderate quality and landscape value but of long term potetnial.	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.

Tree No.	***Species***	***RPA***	***RPA Radius***
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	16m	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)

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	Scale: 1:200 @ A2	
Tel:(01737) 813058	Fax:(01737) 816140	sja@sjatrees.co.uk	
Tree nos.: ● 1	Category 'U' trees: ●[12]	Tree canopies:	

For further information refer to the SJA Tree Survey Schedule
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APPENDIX 3
Trail Pit Report

SIMON JONES ASSOCIATES Ltd.
Arboricultural Consultants

ARBORICULTURAL SUPERVISION RECORD

Client:	**Caspar Berendsen**
Site:	**Grove Lodge, Admirals Walk, NW3 6RS**
Development:	

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 an 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.

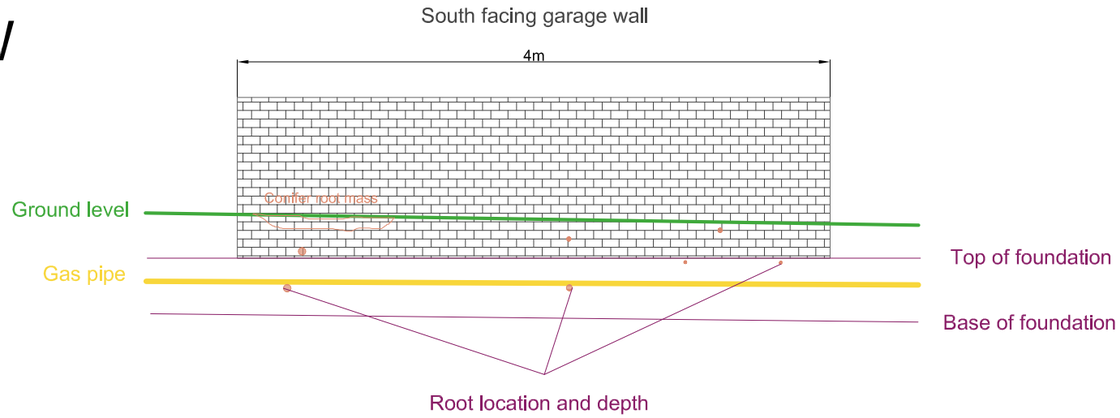
The roots were mapped and a tree root locations plan has been produced document SJA TRLP 14042-01. It was noted that what roots were evident seemed to grow up to the wall root barrier and then divert.

Photograph 6
The roots diverting at the root barrier interface.

N

Elevations

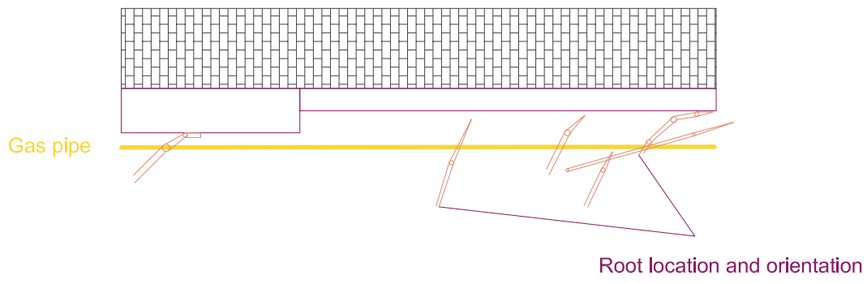
W



E

Plan

W



E

T2

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

For further information refer to the SJA Tree Schedule
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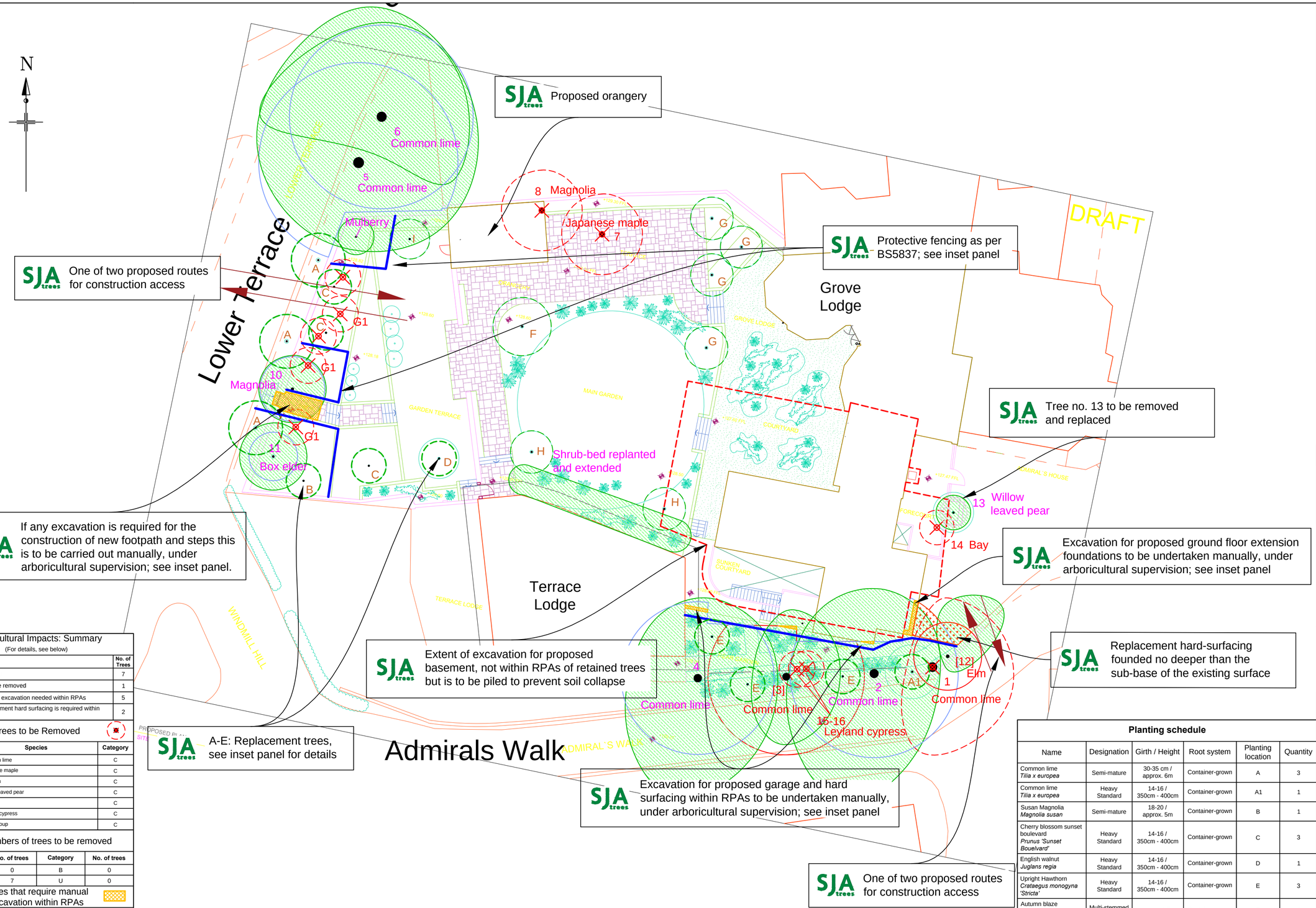
APPENDIX 4
Tree Protection Plan



Arboricultural Impacts: Summary

(For details, see below)

Impact	No. of Trees
Trees to be removed	7
Groups of trees to be removed	1
Trees where manual excavation needed within RPAs	5
Trees where replacement hard surfacing is required within RPAs	2

Trees to be Removed

No	Species	Category
1	Common lime	C
7	Japanese maple	C
8	Magnolia	C
13	Willow leaved pear	C
14	Bay	C
15 and 16	Leyland cypress	C
G1	Entire group	C

Total numbers of trees to be removed

Category	No. of trees	Category	No. of trees
A	0	B	0
C	7	U	0

Trees that require manual excavation within RPAs

No.	Species	Type of structure
2	Common lime	Excavation for retaining wall and foundations for proposed replacement garage
3	Common lime	Excavation for retaining wall
4	Common lime	Excavation for retaining wall
10	Magnolia	Excavation for proposed footpath and steps leading up from existing access

Trees that require above soil surfacing within RPAs

No.	Species	Type of structure
2	Lime	Replacement hard-surfacing
12	Elm	

Planting schedule

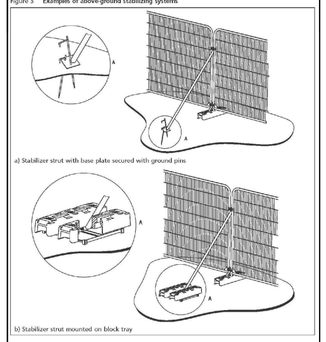
Name	Designation	Girth / Height	Root system	Planting location	Quantity
Common lime *Tilia x europea*	Semi-mature	30-35 cm / approx. 6m	Container-grown	A	3
Common lime *Tilia x europea*	Heavy Standard	14-16 / 350cm - 400cm	Container-grown	A1	1
Susan Magnolia *Magnolia susan*	Semi-mature	18-20 / approx. 5m	Container-grown	B	1
Cherry blossom sunset boulevard *Prunus 'Sunset Boulevard'*	Heavy Standard	14-16 / 350cm - 400cm	Container-grown	C	3
English walnut *Juglans regia*	Heavy Standard	14-16 / 350cm - 400cm	Container-grown	D	1
Upright Hawthorn *Crataegus monogyna 'Stricta'*	Heavy Standard	14-16 / 350cm - 400cm	Container-grown	E	3
Autumn blaze *Acer X Freemanii 'Autumn Blaze'*	Multi-stemmed Semi-mature	approx. 4-5m	Container-grown	F	1
Japanese maple *Acer palmatum*	Multi-stemmed Heavy standard	approx. 2-3m	Container-grown	G	4
Foxglove Tree *Paulownia tomentosa*	Pollarded Semi-mature	approx. 3m	Container-grown	H	2
Apple tree *Malus domestica*	Semi-mature	18-20 / approx. 5m	Container-grown	I	1
Willow leafed pear *Pyrus slaicifolia*	Light standard	10-12 / approx.2m	Container-grown	Tree 13 replacement	1

Plant material shall comply with British Standard BS3936: 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'.

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



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 and 10 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, surfaces 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, and 10.
4. Resurfacing of existing hard-surfacing within the RPAs of tree nos. 2 and 12.

SJA trees ARBORICULTURAL PLANNING CONSULTANTS

Project:	Grove Lodge, Admirals Walk, London
Client:	Mr Caspar Berendsen
Drawing:	TREE PROTECTION PLAN
Drawing No:	SJA TPP 16039-01
Revision No:	
Based On:	dNA GLR 01 002 Plan Prop Site
Drawn By:	FPS/MDJ/NHK
Date:	April 2016
Scale:	1:200 @ A2
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:	1	Protective fencing:		Manual excavation:	
Above soil surfacing:		Proposed tree planting:	A	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 /or 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.