OMC Associates

BSi 5837 Arboricultural Report for Development

CLIENT:	Mr Maisel
CONTACT:	Mr Maisel
SITE:	8 Nutley Terrace, London NW3 5SY
OUR REF:	1107
DATE OF REPORT:	6 December 2016

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CONTENTS

EXECUTIVE SUMMARY

Following pre-application discussions with the local planning authority (LB Camden) regarding some alterations to the existing dwelling at 8 Nutley Terrace, the Council issued advice regarding the type of development it would consider appropriate and its requirements for a valid application.

The proposed development would necessitate the removal of two small trees at the rear of the house; both are inconspicuous and/or could be considered inappropriate in terms of suitability to the local landscape setting. Some superficial pruning of a neighbouring tree overhanging the existing garage would also be necessary to allow working space, although the work is minor and will not affect the tree's long-term health or appearance. The impact of the proposed development is minor and does not encroach within the Root Protection Areas of any retained trees.

This report identifies the impacts of the development and their potentially harmful effect on the trees, and recommends measures to ensure the effects are minimised. These measures include: protection measures to be installed for the duration of the building's construction to prevent impact damage and soil compaction, and protection of roots from the potentially toxic effects of cement products.

1.0 INTRODUCTION

1.1 Brief

This arboricultural report has been commissioned to support an application for development at 8 Nutley Terrace, London NW3. The report is intended to serve as a detailed arboricultural method statement and tree protection scheme to demonstrate that alterations to the existing house can be carried out in a manner that will not harm the health and stability of the trees within the property's garden, and trees in close proximity within neighbouring gardens.

Recommendations are consistent with the most recently revised version of the British Standard for trees and construction – "Trees in relation to design, demolition and construction – Recommendations" (BS5837:2012).

1.2 Scope of Report

This report incorporates an assessment of trees potentially affected by the development, an arboricultural impact assessment that considers the likely effects of the proposed development to the health of the trees, and an arboricultural method statement that provides the details necessary to ensure harm is minimised during construction. A Tree Protection Plan illustrates the provisions of the method statement to ensure its recommendations are effectively implemented.

The report contains the following appendices:

Appendix 1: A Tree Survey and Constraints Plan (TCP) of the site as existing, showing canopy spreads and indicative girth of all retained trees and trees proposed for removal. All trees are represented according to their designated BS 5837 retention category colour (see Appendix 4). The Root Protection Areas (RPAs) of all retained trees are also indicated, the extents of which (where deemed necessary) have been altered to reflect the likely distribution of roots, as influenced by existing site conditions;

Appendix 2: Tree Protection Plan(s) (TPP) clearly illustrating the trees in relation to every aspect of the proposed scheme and every aspect of required protection. Where this is phased, multiple TPPs will be provided for each phase for clarity;

Appendix 3: British Standard specifications for protective fencing and temporary ground protection;

Appendix 4: A cascade chart explaining tree quality assessment in accordance with BS 5837 and key to references used within the tree schedule.

1.3 Background and documents

Following pre-application consultations the local planning authority has advised the type of development it would consider appropriate and requirements for a valid application. The requirements include an arboricultural report that considers the value of the trees within and surrounding the site, the impact of the proposed development on the trees and recommendations for the trees' protection during construction.

Plans showing the property as it currently exists (reference 07.16 SO1-SO4) and proposed alterations (reference 07.16 PO1-PO4) have been produced and used to inform this report and associated plans.

1.4 Site description

The site comprises a single detached dwelling with compact front and rear garden.

1.5 Proposed development

The proposal comprises:

-Remodelling of existing dwelling house by extending to front, rear, side and at roof level;

-Erection of front boundary wall.

2.0 TREES

2.1 General description

The southern and eastern boundaries of the rear garden are densely populated with woody shrubs and herbaceous plants although very few trees exist within the property's garden; all of which are small and relatively immature. A number of trees of varied species and maturity also exist in linear formation close to the rear boundary of the garden in a neighbouring property to the south; although generally unremarkable in terms of their individual quality and prominence in the context of the wider landscape they provide moderate screening between properties. Two early mature trees also exist within a neighbouring garden to the west of the property in close proximity to the flank wall of the garage.

2.2 Tree data

Dimensions relating to height, crown spread measured at four cardinal points (N, E, S, W) and girth at 1.5m have been recorded (girth measurements taken according to topography and tree morphology). Canopy clearance from ground level, and (where necessary), the height and direction of the first significant branch have also been noted where development is proposed close to trees or where implications relating to access facilitation are foreseeable.

The trees' retention value has been assessed according to British Standard criteria and categorized in accordance with the cascade chart at Table 1. A copy of this table is attached at Appendix 4.

While the survey does not include a detailed assessment of tree health and structural integrity, clear faults are noted and factored into the structural and physiological categories.

2.3 Trees and the law

In preparing this report it was established that the property lies within the Fitzjohns Netherhall Conservation Area – this can have major implications for any tree work. Aside from this, the report

does not formally identify any other planning restrictions applying to the trees. Such restrictions may include:

- Tree Preservation Orders (TPO);
- Planning Conditions related to trees and landscape management.

Please note that no works around trees should be carried out without the approval of the Local Planning Authority (since it is likely to incur large fines) unless planning permission has been granted that indisputably necessitates the removal or pruning of any of the trees included within this report.

Section 197 of the Town & Country Planning Act 1990 states that it shall be the duty of the local planning authority to ensure whenever it is appropriate, that in granting planning permission, "adequate provision is made, by the imposition of conditions, for the preservation or planting of trees" Even when no specific legal protection exists it may be necessary to obtain a felling license from the Forestry Commission if the volume of timber removed exceeds felling license quotas.

The Planning (Listed Buildings and Conservation Areas Act) (1990) in conjunction with English Heritage empowers local authorities to designate areas of special architectural or historical interest as 'Conservation Areas', to preserve their character and appearance. Trees can form an intrinsic part of the character and appearance of such areas and the Act prohibits any works to trees within them with a stem diameter measuring in excess of 75mm at a height of 1.5 metres from ground level.

Prior written notice must therefore be given to the local authority of the intention to carry out works to trees in Conservation Areas and the authority's formal response obtained within the statutory timeframe before works can commence. Penalties for carrying out works to trees in Conservation Areas without Local Planning Authority consent are the same as those for unauthorised work to trees protected by TPO.

Section 11 of the National Planning Policy Framework adopted in March 2013 "Conserving and enhancing the natural environment" states, "*the planning system should contribute to and enhance the natural and local environment by: protecting and enhancing valued landscapes, recognizing the wider benefits of ecosystem services and minimising impacts on biodiversity*". It also stresses the importance of "*protection, enhancement and management of green infrastructure*"

The Wildlife & Countryside Act 1981, the Conservation (Natural Habitats etc.) Regulations 1994 and the Countryside & Rights Of Way Act 2000 are all of relevance.

Please turn over

2.4 Tree schedule

Tree No.	Common Name	Height (m)	Stem Dia. (mm)	Crown Spread (m) N	E	S	W	Maturity	1st sig. branch (m)	Crown Height (m)	Physiological Condition	Structural Condition	Life Expectancy (yrs)	BS 5837 Category	RPA Radius (m)	Comments
T1	Purple-leafed plum (*Prunus cerasifera Nigra*)	7	220	2	1.5	2.5	2.5	Mature	3.5 (N)	3.5	Fair	Fair	10-20	C1, C2	2.7	Located in neighbouring property (28 Maresfield Gdns), adjacent to the rear boundary of the garden. Base and main stem obscured by ivy/vegetation. Heavy crown reduction has stimulated the production of profuse water-shoots throughout crown. Moderate screening value.
T2	Purple-leafed plum (*Prunus cerasifera Nigra*)	7.5	330	2.9	3.3	3.0	3.0	Mature	3.5 (N)	2.5	Fair	Fair	10-20	C1, C2	3.9	Located in neighbouring property (28 Maresfield Gdns), adjacent to the rear boundary of the garden. Base, main stem and primary crown structure obscured by ivy/vegetation. Heavy crown reduction has stimulated the production of profuse water-shoots throughout crown. Moderate screening value.
T3	Holly (*Ilex aquifolium*)	3.5	80	2.0	2.0	1.0	2.0	Early Mature	1.5 (N)	1.5	Fair	Poor	>40	C1	0.9	Centrally located within shrub bed on southern boundary. Suppressed to south by neighbouring trees, gentle lean to north.
T4	Paper-barked maple (*Acer griseum*)	4	130*	2.5	2.5	2.5	2.5	Semi Mature	-	-	Good	Good	>40	C1	1.5	Located in neighbouring property (30-32 Maresfield Gdns). General good form and vitality.
T5	Elder (*Sambucus nigra*)	4	150*	3.5	2.0	3.5	2.0	Mature	3.5 (S)	2.0	Fair	Fair	10-20	C1	1.8	Located in neighbouring property (30-32 Maresfield Gdns) adjacent to the western flank wall of the garage. Slightly overhangs garage roof. Unremarkable tree of moderate amenity value.
H1	Leyland cypress x9 (X *Cuprocyparis leylandii*)	3.5	150*	1.0	1.0	1.0	1.0	Mature	-	0.5	Fair	Fair	20-40	B2	1.8	Located in neighbouring property (28 Maresfield Gdns), adjacent to the rear boundary of the garden. Recorded stem diameter is average for all trees, measured at base. Regularly clipped/managed as a hedge. Moderate screening value.

N.B. A key to the references within this schedule is attached at Appendix 4

2.5 Summary of the trees

A small date palm and fastigiate yew exist in very close proximity to the rear wall of the house. According to British Standard criteria the yew is below the minimum stem diameter to qualify for assessment; the palm is also young and of little amenity value. The southern and eastern borders of the rear garden are densely vegetated with mature woody shrubs and herbaceous plants; a single young holly (T3) exists roughly central within the border on the southern boundary. Two purple-leafed plum trees (T1 and T2) exist in very close proximity to the southern boundary in the neighbouring garden to the rear (28 Maresfield Gardens); both trees are of average general form for their species and have been heavily reduced. A relatively young Leyland cypress hedge comprising 9 trees also exists on the southern boundary in the neighbouring garden; this has also been subject to moderate reduction and appears to be regularly maintained at reduced dimensions. Although unremarkable, the trees have moderate screening value between properties.

Two trees exist in the rear garden of 30-32 Marefield Gardens, a young paper-bark maple and elderberry. The maple is of good general form and vitality and the elder of moderate quality and partially overhangs the existing garage.

3.0 TREE RELATED SITE CONSTRAINTS - GENERAL

3.1 Tree crowns/canopies

Where the crowns/canopies of trees to be retained overhang a development site, careful assessment of the implications must be made in order to avoid damage to stems and branches. Given the close proximity of T5 to the garage, some minor pruning of its eastern lateral crown (1 metre) will be necessary to create working space.

Schemes that require excessive and inappropriate crown reduction so that the trees' health and form are adversely affected, or necessitate the repeated cutting back of trees over the long-term to avoid conflict with new structures should be avoided. Such conflicts are not anticipated here, owing to the slight nature of the proposed changes to the house and the trees' remote position from the construction area. Some minor pruning of T5 will be necessary to maintain clearance to the garage, although this will not dramatically alter the tree's appearance or necessitate the removal of major limbs/stems.

3.2 Indirect damage (subsidence)

This is applicable where a shrinkable substrate prevails. Where applicable an appropriate foundation compliant with NHBC guidelines must be designed to ensure that trees and buildings co-exist for the long term and pressure is not applied in future years following development to remove nearby trees because of indirect damage as a result of shallow foundations.

3.3 Root Protection Area (RPA)

An RPA is defined in BS 5837:2012 as "*the area surrounding a tree that contains sufficient rooting volume to ensure the tree's survival*".

The nominal (default) shape of the RPA is a circle, however, the British Standard requirement when determining the likely spread of roots and therefore the resultant shape of the RPA is to consider existing site conditions that may affect root morphology and disposition. Such conditions include: the presence of roads, structures and underground apparatus; topography and drainage, and; local soil type and structure. The nominal (pre-assessment) RPAs and resultant (modified) RPAs are shown on the Tree Constraints Plan at Appendix 1.

Though encroachment upon the RPA should always be avoided, (see section 4 for reasons) it can be acceptable under certain circumstances. This involves assessment of the tolerance of

individual trees based on a variety of biological and circumstantial factors. In this instance no incursion within any RPA is proposed.

4.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT (AIA)

4.1 Affects of development on trees - general

The objective of this report is to identify and evaluate the extent of direct and indirect damage on existing trees that may consequentially result if the proposed development were implemented without appropriate guidance.

A tree may take a century to reach maturity but can be irretrievably damaged in a few minutes, often because of a failure to appreciate their vulnerability - particularly the root system. *Irreparable damage is frequently done to existing trees in the first few days of a contractor's occupation of a site as a result of this lack of understanding*.

This report seeks to provide guidance on how worthy trees in the immediate vicinity can be protected during the development.

It is important to be aware that the effects of tree damage may not be apparent for some time.

There are a multitude of activities that can kill or damage trees on construction sites and there is a need to be mindful of these activities and why they may be so harmful to trees. These are briefly summarized below.

4.1.1 Direct mechanical damage

Direct damage to the crown or stem arising from construction activity e.g. impact from vehicles/plant machinery, equipment being chained and/or building materials being stacked against stems is unlikely to kill a tree unless it is significant, but may disfigure trees by scuffing off patches of bark which, over time, can promote the development of long-term decay and degradation by fungal pathogens. This often occurs as a result of construction activities taking place too close to trees where steps have not been taken to ensure their physical protection, or as a result of inappropriate or poorly executed pre-construction tree surgery.

4.1.2 Ground compaction

This is likely to be the most common cause of tree death or decline on a building site and paradoxically the least appreciated, due to the damage occurring to trees' root systems which cannot be readily seen. The vast majority of tree roots are located in the upper soil horizons where soil conditions are most favourable for root growth. It is these upper horizons that are most vulnerable to ground compaction. Compaction destroys soil structure, squashing particles together and preventing percolation of moisture and natural aeration. This process deprives tree roots of moisture as well as promoting root asphyxiation; oxygen is essential for healthy root function and lack of aeration is often fatal to trees.

4.1.3 Changes in ground level

The majority of a tree's root system is generally located in the upper 0.6m of the ground. The vast majority of these roots are extremely delicate hair-fine 'feeder roots', essential for the uptake of moisture and nutrients vital for healthy growth and normal function. Reductions in ground level associated with construction such as soil stripping can therefore have catastrophic effects to tree's health where large a quantity of the absorptive root system is removed. Conversely increases in ground level can result in root asphyxiation.

4.1.4 Severance of roots by ground works

Excavation of ground to remove old foundations and hard standing, construction of conventional concrete footings, new hard standing or the installation of services such as water/sewerage pipes, gas/electricity cables, TV/telephone cables using open trenching within the drip-lines of trees severs any roots present, potentially leading to destabilization, decline or death of trees. Sudden reductions in trees' moisture-absorbing capabilities may also have implications for local soil hydrology.

4.1.5 Soil contamination

Spillage of petrol, diesel, paint removers, wood preservatives and many other toxic liquids regularly used on building sites can kill roots. Concrete or cementitious (mortar, cement, slurry) washout wastewater is caustic and considered to be corrosive with a pH over 12, essentially the same as Liquid Drano®, ammonia or other household cleaning detergents. The primary ingredient in ready mixed concrete is Portland cement, which consists of Portland cement clinker, calcium sulphate, calcium and magnesium oxide, heavy metals and potassium and sodium sulphate compounds, chromium compounds and nickel compounds. In cases where tree roots have been exposed to the high pH of cement products, the effects may include inhibited growth and dieback of portions of the crown due to cellular damage from the uptake of toxic compounds, and substantial alteration of the soil and plant chemical composition even after the source of pollution is gone.

4.1.6 Changes in ground surfacing

Covering surfaces with impermeable materials – especially areas of previously open, undisturbed ground can prove fatal for tree roots. Trees derive moisture from regular moisture recharge of the ground from rainfall, and nutrients generated by the nutrient cycle from decomposing leaf litter. Oxygen is also essential for healthy root function. The introduction of impervious surfaces can therefore prevent moisture infiltration, the release of nutrients from natural decomposition and gaseous interchange between the ground and the atmosphere - creating a build-up of toxic waste gases such as carbon dioxide and oxygen deficit. BS 5837 states that new permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

4.2 Affects of development on trees specific to this site

Extension of the southern (rear) extent of the property will require the removal of the date palm and fastigiate yew in close proximity to the existing rear wall of the house. Both trees are inconspicuous and could easily be replaced. The palm is also of a species that is somewhat out of keeping with the character of the local area and its removal could provide the opportunity to plant a replacement better suited to the local setting. If the local planning authority is minded to accept the removal of these trees, their replacement with trees of a suitable size for the location and species better suited to the character of the local landscape is strongly encouraged and should form an integral part of any proposal, in the form of a detailed soft landscaping scheme.

Vertical extension of the existing garage will necessitate some minor pruning of T5 to allow space for construction. Given the tree's location on neighbouring land, its owner should be informed of this work prior to its commencement. The owner's permission will also be necessary if the work necessitates access within the neighbouring garden. Protection of the tree's crown will also be necessary during construction to prevent damage from falling debris or spattering with wet materials e.g. render, cement or paint.

A moderate potential for root poisoning exists if the property's rear garden's lawn is used for mixing concrete, and the washings are allowed to leach into the surrounding soil. To prevent this in the event that the lawn area is designated for such activity, mixing will need to take place in a contained area (e.g. plywood board with fixed edging boards covered in plastic sheeting) at least 5m from the RPA of any tree in order to prevent any runoff into the RPA.

5.0 ARBORICULTURAL METHOD STATEMENT (AMS)

5.1 Introduction

Successful avoidance of damage to retained trees can be achieved through the provision of appropriate tree protection details, the correct implementation of these details and close liaison with the Council's Tree Officer and the appointed arboriculturist. The Tree Officer shall be informed once protection is in place and given the opportunity to inspect it prior to commencement of the development. The Tree Officer should also be kept updated as may be necessary with the development's progress by way of written or verbal communication with the appointed arboriculturist.

These details and procedures are provided in the method statements outlined below and illustrated on the Tree Protection Plan attached at Appendix 2.

5.2 Root Protection Area (RPA)

This is defined within the current British Standard for trees and construction (BS5837:2012) as "*the area surrounding a tree containing sufficient rooting volume to ensure the tree's survival*".

The British Standard formula for calculating the RPA has been used and the resultant RPAs illustrated on the Tree Constraints Plan at Appendix 1.

The use of a CEZ and temporary ground protection (see 5.5) are designed to protect the RPAs.

5.3 Installation of protective barriers and ground protection to create a Construction Exclusion Zone (CEZ)

All damage types can be avoided through the establishment of Construction Exclusion Zones (CEZ) with the use of protective barriers and/or ground protection. The specification for barriers and ground protection conforming to British Standard recommendations is detailed below; illustrated specifications are also attached at Appendix 3. The positioning of all tree protection is clearly illustrated within the Tree Protection Plan at Appendix 2.

The use of a CEZ limits RPA incursion from unavoidable areas of operation; in this case segregating all trees within the property's garden and trees in neighbouring gardens vulnerable to construction activity.

Given the close proximity of T5 to the flank wall of the garage, protection in the form of heavy gauge netting e.g. polyethylene scaffold debris netting will be suspended on scaffold poles over the tree to protect it from falling debris or being spattered with wet products such as cement / render / paint etc. If scaffold is to be erected over the tree it will be constructed in such a way to accommodate the tree's structure – boards supported by the scaffold framework will also constitute adequate protection.

The barriers used to secure the CEZ at the end of the rear garden and protection for T5 must be installed before the commencement of any construction activity. Once erected and secured the Exclusion Zone and protection must not be altered or removed without advice from the arboriculturist and/or approval of the local planning authority.

All protection measures must be fit for purpose. In the case of protective barriers BS 5837:2012 recommends weld mesh (Heras)-type panels secured firmly to a scaffold framework (scaffold clamps are recommended) and braced with diagonal stabilizer struts, or Heras-type panels mounted on rubber feet and diagonal stabilizer struts, all secured to the ground with metal pins. In this instance the latter is deemed acceptable.

NOTE: In the event the fencing becomes damaged it must be repaired or replaced as soon as is reasonably practicable to preserve its efficacy.

Once the protective fencing is in place and secured, construction may commence. The fencing will remain in place and secured until such time that all construction is complete and materials/equipment have been removed from the site.

5.4 Additional precautions outside the Construction Exclusion Zone

All liquids or other substances having the potential to contaminate the ground (such as diesel oil or concrete washings) shall be prevented from discharge or running off into the CEZ of any retained trees or within 10m of any of any other tree stems.

All concrete shall be stored and not mixed within 5m of the perimeter of any RPA. If concrete will be mixed in relatively close proximity to trees this shall be undertaken on a bunded mat. This may be constructed in ply-wood with raised edge boards and lined with heavy-grade polythene to contain spillages.

No fires that have the potential for flames to extend or be blown to within 5m of any point of the tree are to be lit.

5.5 Sequence of events

1) Carry out preliminary tree works;
2) Erect protective fencing and protection for T5;
3) Commence construction;
4) Maintain efficacy of fencing throughout construction phase;
5) Remove fencing when construction is complete and all materials have been removed from site.

All relevant aspects of this method statement must be incorporated into the construction method statement to avoid any conflicts.

No building work or other activity associated with commencement of development can take place until the approved protection measures are in place.

6.0 SUPERVISION

6.1 General

The site manager is responsible for ensuring that the details specified within this report are fully complied with. Part of this must involve all site personnel being correctly inducted so that they understand the implications of the report.

The developer must ensure that the arboricultural consultant is contacted at the appropriate stages so that the installation or alteration of protection measures is carried out in accordance with professional recommendations and, where required, site monitoring is carried out.

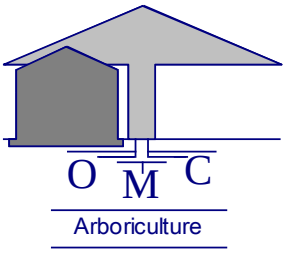
Planning conditions attached to a planning consent that relate to tree protection supervision cannot be discharged without formal and fully completed inspection records.

Failure to comply with tree protection details as a result of poor site management can result in Breach of Condition or Stop Notices and unlimited fines.

6.2 Schedule of supervision

The following schedule of visits is therefore advised:

1) Pre-start meeting with contractor and installation of tree protection (fencing and ground protection);
2) Prior to any proposed changes in the tree protection recommended within this report.



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Appendix 1 Tree Constraints Plan

Nutley Terrace

North
(Indicative)

Nursery
School

32

30

28

Garage

T5
(C1)

T4
(C1)

Small fasigiate yew

Date palm

Terrace

1.5m difference in level between terrace and lawn

Patio

1.2m brick wall

Mixed shrubs:
Ceanothus/Euonymous/Kerria/
Osmanthus/Choisia/Camelia/
Prunus/Forsythia/Aucuba/Eleagnes
/Buddleia/Trachycarpus

Lawn

T3 (C1)

T1
(C1,C2)

T2
(C1,C2)

H1
(B2)

0 5 10 15 20 25

Metres

1:200

DO NOT SCALE
Use only figured dimensions

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality and value: in such a condition as to be able to make substantial contribution (a minimum of 40 years is suggested)

Category B
Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20years is suggested)

Category C
Trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10years is suggested), or young trees with a stem diameter below 150mm.

Category U
Trees in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

BS 5837 Root Protection Areas
Adjusted to reflect the likely distribution of roots, as influenced by existing site conditions

BS 5837 Root Protection Areas
Nominal - prior to adjustment

Trees Proposed for Removal

Shade Segment
Indicative of shade cast between April and August

Direction of First Significant Branch

-	-	-
REVISIONS		

Title
Tree Survey, Constraints & Removals

Client
Mr Maisel

Project
8 Nutley Terrace, London NW3 5SY

Date	Drawn by
December 2016	CS
Drawing No	**Scale**
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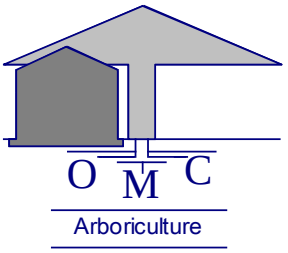

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Appendix 2 Tree Protection Plan

Nutley Terrace

North
(Indicative)

Extents of pruning (1m) to clear garage

sliding gate

2.3m high garden wall

T5
(C1)

Garage

Nursery School

Line of existing rear wall

T4
(C1)

2m timber screen

Terrace

Lawn

4.0m

T3 (C1)

T1
(C1,C2)

T2
(C1,C2)

H1
(B2)

32

30

28

0 5 10 15 20 25

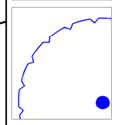
Metres

1:200

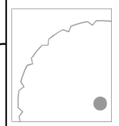
DO NOT SCALE
Use only figured dimensions

BS 5837:2012 TREE RETENTION CATEGORIES

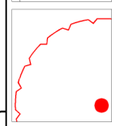
Category A
Trees of high quality and value: in such a condition as to be able to make substantial contribution (a minimum of 40 years is suggested)



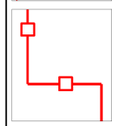
Category B
Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20years is suggested)



Category C
Trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10years is suggested), or young trees with a stem diameter below 150mm.



Category U
Trees in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.



BS 5837 Tree Protection Fencing
(refer to section __ and Appendix __ of the Arboricultural Method Statement for description and specification)

-	-	-
REVISIONS		

Title
Tree Protection Plan

Client
Mr Maisel

Project
8 Nutley Terrace, London NW3 5SY

Date	Drawn by
December 2016	CS
Drawing No	Scale
1107_TPP	1:200 @ A3 (subject to PDF distortion)

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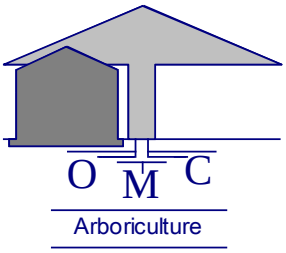

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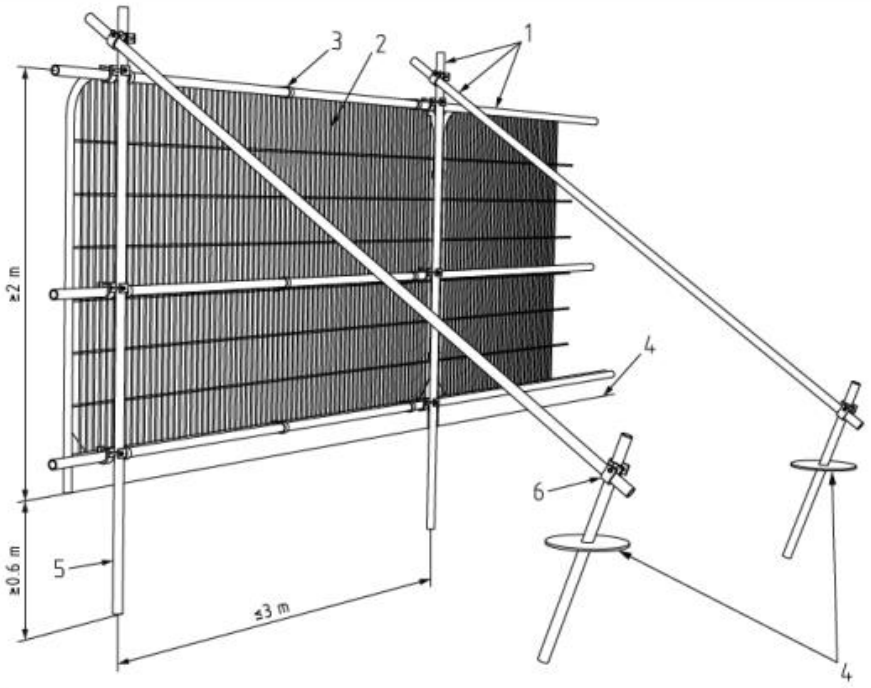
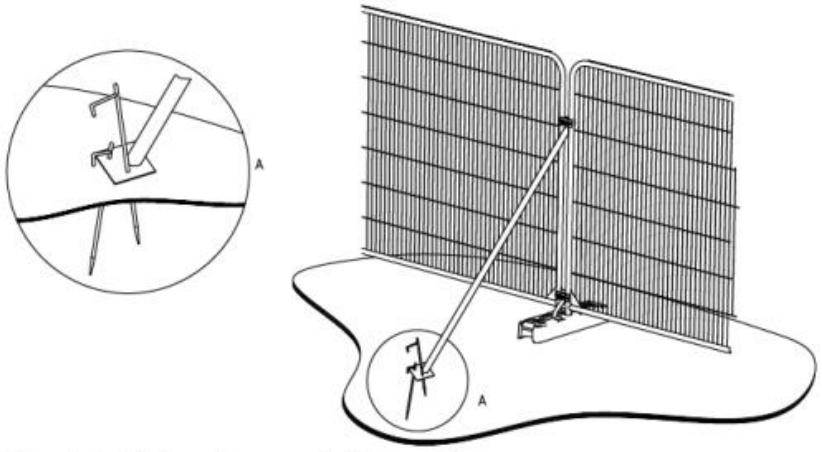
Appendix 3 British Standard specifications for protective fencing

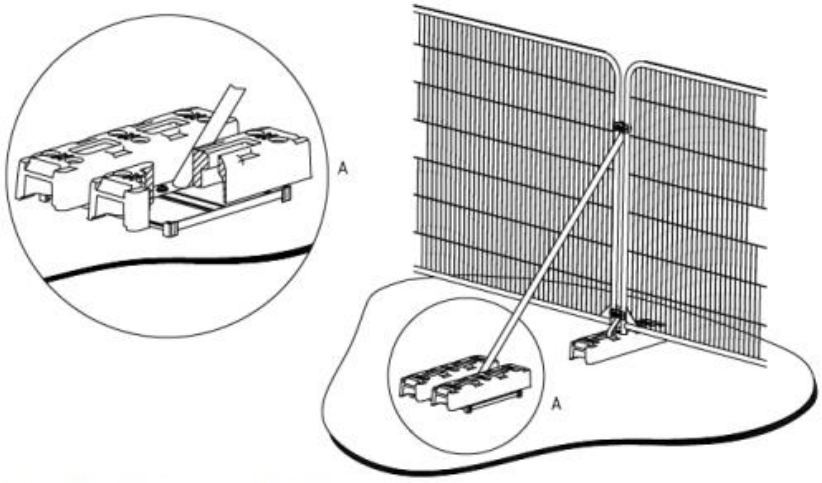


Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

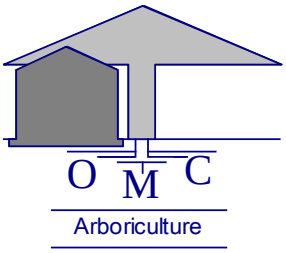


a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Single stem diameter	Radius of nominal circle	RPA	Single stem diameter	Radius of nominal circle	RPA
mm	m	m^2	mm	m	m^2
75	0.90	3	675	8.10	206
100	1.20	5	700	8.40	222
125	1.50	7	725	8.70	238
150	1.80	10	750	9.00	255
175	2.10	14	775	9.30	272
200	2.40	18	800	9.60	290
225	2.70	23	825	9.90	308
250	3.00	28	850	10.20	327
275	3.30	34	875	10.50	346
300	3.60	41	900	10.80	366
325	3.90	48	925	11.10	387
350	4.20	55	950	11.40	408
375	4.50	64	975	11.70	430
400	4.80	72	1 000	12.00	452
425	5.10	81	1 025	12.30	475
450	5.40	92	1 050	12.60	499
475	5.70	102	1 075	12.90	519
500	6.00	113	1 100	13.20	547
525	6.30	124	1 125	13.50	573
550	6.60	137	1 150	13.80	598
575	6.90	150	1 175	14.10	625
600	7.20	163	1 200	14.40	652
625	7.50	177	1 225	14.70	679
650	7.80	191	1 250+	15.00	707



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Appendix 4 Cascade chart explaining tree quality assessment and key to tree schedule references

BS 5837:2012 Cascade chart for tree quality assessment (Table 1)

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such condition that they cannot realstically 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 to collapse, including those that will become unviable after removal of other U category 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 stability of other nearby trees (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. **NOTE:** Category U trees can have existing or potential conservation value which it might be desirable to preserve.			DARK RED
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are of particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands 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)	LIGHT GREEN
Category B **Trees of moderate quality** with an estimated contribution of at least 20 years	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	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	MID BLUE
Category C **Trees of low quality** with an estimated contribution of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

KEY TO TREE SCHEDULE REFERENCES

Prefix: **T –** Tree **S** – Shrub/Climber **TG/SG** – Group/Hedge of Trees or Shrubs **H** - Hedge **Dia.:** **N/A -** Tree less than 100mm (for shrubs: young, semi-mature or mature)

***** Estimated

Age Class:

Young:	Generally less than 10 years old and high life expectancy
Semi-mature:	Within first 30% of life expectancy and significant growth to be expected
Early-mature:	Typically 30-60% of life expectancy, full size almost reached
Mature:	Typically 60% or more of life expectancy, full size reached with very gradual, slight further increases in size
Veteran	A stage of development where intervention/management may be required to ensure the tree remains safe
Over-mature:	Where a tree is so senescent that management is not worthwhile

Life Expectancy: How many years before tree is likely to need removing (subject to human intervention) **Crown Radius:** If crown is symmetrical, one dimension is given for the radius followed by "S"

B.S. Category: **See Appendix 2**

Physiological Condition:

Good:	Healthy tree with no symptoms of significant disease
Fair:	Some disease noted and/or vitality is below what would be expected
Poor:	Significant disease noted and/or very low vitality
Very Poor:	Tree is in severe decline

Structural Condition:

Good:	No significant structural defects
Fair:	Defects noted but not sufficient to warrant immediate work
Poor:	Significant defects. Monitoring and/or remedial works required
Very Poor:	Significant defects requiring immediate work or tree removal

Space Below Crown: A useful indicator to determine the practicality of developing below the crown. Rather than a measurement which can be misleading and open to interpretation.

Y	Potential to develop below the dripline with either no treework or removal of limbs that will not adversely affect the health and appearance of the tree
N	No scope to develop below the dripline of the tree
N/A	Tree to be removed

Treework: This is general since the report is not a tree-work specification. It indicates:

H	High priority. For trees to be retained and where work required to make safe
L	No urgent work required but would benefit from some intervention
N	No treework identified as necessary in the foreseeable future
P	Facilitation tree surgery advised
R	Remove – tree identified to be removed because “U” category tree
RA	Tree removed to accommodate development
IV	Sever and remove ivy

B.S. Category:

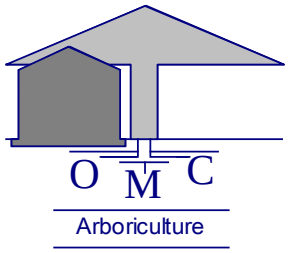
A - Those of high quality and value i.e. make a substantial contribution;

B - Those of good/moderate quality and value, might be Cat. “A” but slightly impaired

C - Those of low quality i.e. adequate to remain until new planting is established or young trees with a stem diameter less than 150mm at 1.5m height

U - Those of such poor condition that any existing value would be lost within 10 years

1 - Mainly Arboricultural value **2 - Mainly Landscape value** **3 - Mainly Ecological value**



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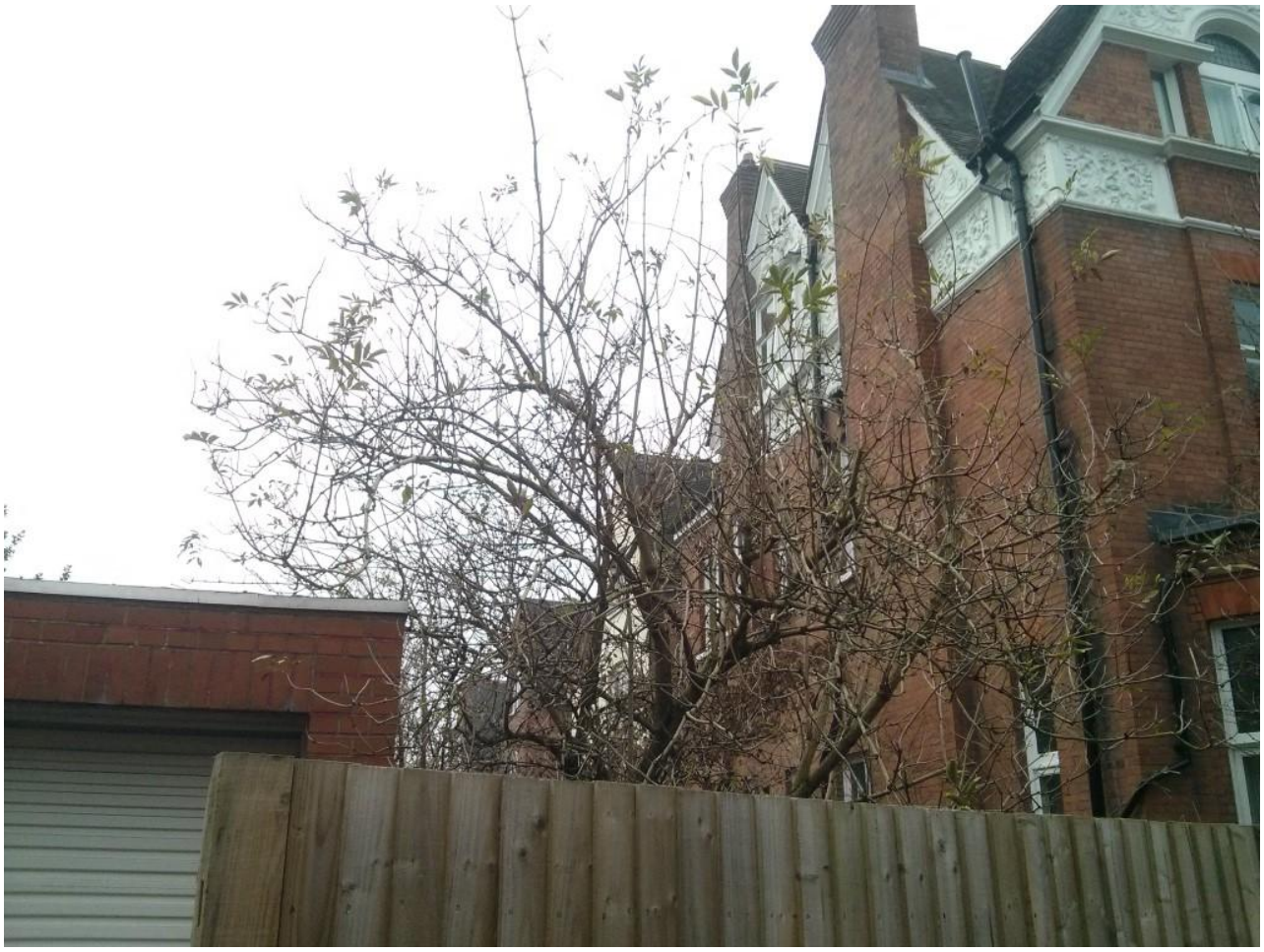
Appendix 5 Photographs

Above: Rear of property with date palm proposed for removal

Below: Rear garden with T1 – T3 & H1

Above: Date palm and fastigiate yew



Above / below: T5 in neighbouring rear garden to west of garage