

1-38-3917

## REPORT

on the impact on trees

of proposals for development

at

26 Rosecroft Avenue, London, NW3 7QB

(3<sup>rd</sup> May 2016)



Registered Consultant of the Arboricultural Association  
John Cromar, Dip. Arb. (RFS), F.Arbor A.



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JOHN CROMAR'S  
ARBORICULTURAL  
COMPANY  
LIMITED

•  
The Old School  
Titley  
HR5 3RN  
*at Jericho, Oxford  
& Harpenden, Herts.*

TEL 01582 80 80 20  
FAX 01544 231 006  
MOB 07860 453 072

•  
[admin@treescan.co.uk](mailto:admin@treescan.co.uk)  
[www.treescan.co.uk](http://www.treescan.co.uk)

## **01**

### **Introduction and Instructions**

I am instructed by Mr. Panchal to make an assessment of tree amenity value and condition of trees at 26 Rosecroft Avenue, London, NW3 7QB and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 4<sup>th</sup> January 2016 in order to carry out an inspection.

## **02**

### **Copyright**

#### **02.01**

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## **03**

### **Notes**

#### **03.01**

##### **PLANS**

1-38-3917/P1 gives an approximate representation (in plan) of actual crown form, and is intended to indicate the relationship of neighbouring trees to each other, and should be read with the comments on crown shape and tree value in TREE DETAILS appended. The plan gives a quick reference assessment of value as per section 4, table 1, of BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 related mainly but not exclusively to the criterion of *visual value to the general public*. The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Some surveys may not include any trees of one or more categories. Table 1 suggests categories 'U', 'C', 'B' and 'A', in ascending merit. 'U' (**RED crown outline on plan**) category trees are dangerous \ low value trees that could require removal for safety or arboricultural reasons. 'C' (**GREY or black/uncoloured crown outline on plan**) category trees are of no particular merit, but in adequate condition for retention. 'A' category trees (**GREEN crown outline on plan**) are trees of high vitality or good form, or of particular visual importance: 'B' (**BLUE crown outline on plan**) category are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees. See TREE DETAILS appended. Category Assessment appears in column 10. This standard also provides a way of determining an area (see TREE DETAILS column 7) - the **RPA** - root protection area - around the trunk of the tree in which protective measures should be used in order to prevent significant damage to trees. There are various ways of achieving this. A simple way is to use exclusion fencing, but other methods have been shown by established use to be very effective.

### **03.02**

1-38-3917/P2 and 1-38-3917/P3 are colour-coded to indicate where arboricentric methods are proposed during the demolition and construction processes.

## **04**

### **Sources and Documents**

Ground level inspection.

Supplied plans :

SGD Site Engineering & Surveys Ltd. drg. 14053-S1

Hestia Developments Ltd. drg. PL101

## **05**

### **Appraisal**

#### **05.01**

##### **AMENITY / SCREENING BY TREES AND SHRUBS**

Certain trees in the front garden are of some limited general public amenity value, as they are visible from Rosecroft Avenue. Several trees at the side of the property are only visible as 'glimpse' or 'skyline' features, if at all. A significant number of the trees are of only strictly local amenity value to owners / users of the site, and to those of adjoining properties.

#### **05.02**

##### **TREES AND LAYOUT - POTENTIAL FOR CONFLICT WITH ROOTS**

(Details appear in the tree detail table appended.) The figures in columns 6 and 7 in the tree details table appended indicate the root protection area ('RPA'), and typically the basic exclusion fence position. New materials and methods have been developed and continue to be developed that assist in promoting the successful retention of trees in association with constructed features. It should be noted that BS 5837:2012 (section 7.4.2) supports 'up and over' methods of construction where appropriate. The design principle of this method is outlined within Arboricultural Practice Note 12 (Through the Trees to Development, - a revision of APN 1, 1996, published by AAIS / Tree Advice Trust). This method has been used for many years on the recommendation of John Cromar's Arboricultural Co. Ltd. and has successfully allowed the retention of mature trees very close to construction activities.

#### **05.03**

An assessment as per BS5837:2012 section 4.6.2 has been carried out in connection with all trees to be retained. (This section requires that site conditions, tree mechanics, etc., are taken into account in determining the likely position of roots.) Regular reduction or pollarding promotes shrinkage of the root system, in accordance with established knowledge of tree physiology, e.g. in 'Crown Pruning Effects on Roots' *Coder*, (1997) found:

A decline in carbohydrate from failing photosynthesis (as in green wood pruning) allows carbohydrates to be preferentially held in the shoot. The result is a greater allocation of carbohydrate to shoot production and less to roots. After a time of internal nitrogen reallocation, the smaller allocation of

carbohydrate to roots means less nitrogen uptake. As pathogens, damage, toxins, stress, etc. limit photosynthesis, **less root area is generated.**

Thus, given the very strict pollarding regime, decline of the root systems of 6 and 7 to at least some 40% below the orthodox extent of the RPA is now likely to have occurred.

#### **05.04**

##### **ROOTS and DESIGN**

SRP is an acronym for *static root plate*, (after *Mattheck*, 1991, etc.) a radial dimension derived from trunk diameter based on studies of wind-thrown trees and thus a guide to where structurally significant roots are likely to be located. RPA is an acronym used in BS5837:2012 and signifying the *root protection area*. The RPA is a guide to where systemically significant roots are likely to be located. Some encroachment on the RPA of certain retained trees is entailed, as analysed in the table below :

<b>No.</b>	<b>Tree</b>	<b>RPA in sq.m.</b>	<b>Area sq.m affected</b>	<b>% affected</b>	<b>Notes</b>
9	Leyland cypress	47.78	6.98	14.61	Proposed basement

In the writer's now extensive experience gained over more than a third of a century in arboriculture, controlled, limited-extent, vertical root cutting of this kind is of little or no significance to tree health. The actually damaging operations are those that degrade or compact the ground surface within the RPA, for example by uncontrolled access by mechanical excavators, dumpers, etc. It should be noted that the limited root cutting entailed in this proposal is, by an order of magnitude, far less than that entailed in the commercial moving of maturing and even mature trees, which has been practised successfully for centuries. In view of the above I conclude that all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated. Methods are proposed below to reduce impacts on root systems of retained trees.

#### **05.05**

##### **PERCEPTION OF TREES**

The proposed basemented building is in an identical position to the non-basemented existing structure : the existing structure's position in relation to the existing trees has not generated any obvious or reported requirement to prune trees inappropriately, and as the proposed basement will be partly artificially lit (two lightwells being proposed), I conclude that shading by and perception of trees has been considered (as sections 5.3.4 and 5.6.2.6 of BS 5837:2012 recommend) and appear not to be negative factors.

#### **05.06**

Processing by the LPA of any due application from future owners for permission to carry out tree work will no doubt be carried out with due regard for good arboricultural practice and according to British Standard 3998:2010 'Tree Work – Recommendations'. In any appeal that might arise against refusal of LPA consent to reduce inappropriately, or fell trees, common arboricultural criteria to

those of the LPA would be used by any specialist tree inspectors of the Planning Inspectorate, and thus the trees would in my view be thus protected against inappropriate work. I consider that any such notional issues are very likely to be dealt with appropriately as no doubt in the past they have been within the Borough, as such tree/building juxtapositions are far from rare.

#### **05.07**

##### **SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING**

I note from the drawings supplied that no encroachment on the crowns of retained trees will occur.

#### **05.08**

##### **TREE REMOVAL APPRAISAL and REPLACEMENT PLANTING**

Please see section **08** for comments on the individual trees proposed for removal. Overall, the loss of five trees of average quality is proposed. Their loss will be addressed by appropriate tree planting, which will play some role in providing for future public and local amenity. See plan for locations:

A= mulberry (*Morus alba* 'Platanifolia') 14-16cm girth 85 L pots

#### **05.09**

##### **SUPERVISION**

Supervision by an arboriculturist is a nigh-essential element of site management where trees are present and to be retained. Good communication between site agent and arboriculturist can reduce the need for such a measure. I propose that this takes place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are as per method 1 in section 06.02 below.

#### **05.10**

##### **PUBLISHED GUIDANCE IN RELATION TO TREES AND DEVELOPMENT**

In conserving trees on development sites, expected best practice is as in B.S. 5837 : 2012. Section 5.1.1 notes :

**“Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification : 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.”**

#### **05.11**

The above advice appears to have been considered in formulating proposals for development.

#### **05.12**

##### **CONCLUSION**

**I conclude that the construction proposed, subject to precautionary measures as outlined above and as per the recommendations outlined below, will not be injurious to trees to be retained, nor will require any trees of significant public amenity value to be removed. Any tree losses will be satisfactorily addressed by proposed planting.**

## **06**

### **Tree Protection Proposals**

#### **06.01**

##### **TREE PROTECTION - GENERAL**

It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree protection methods specified. A single traverse of a root protection area by a mechanical excavator can cause SIGNIFICANT and PERMANENT (albeit temporarily invisible) damage to trees. Such machinery, including piling rigs, shall be kept at ALL times outside the root protection areas as indicated in the tree details table appended, and/or shall be subject to SPECIAL METHODS below. Fences to protect trees shall be respected as TOTAL EXCLUSION fences. Hence, before any site activity, including demolition, the fence lines shall be complete. Protective fencing and any temporary protection of ground surfaces will have to be removed in due course to allow finishing of landscaping, paving, etc., but this shall not take place until all need for vehicular access to the site has passed, and shall be agreed with arboriculturist / planners on site during progress of works.

#### **06.02**

##### **TREE PROTECTION – SPECIAL METHODS 1-13.**

##### **PRE-CONSTRUCTION PHASE**

PLEASE READ WITH PLAN REFERENCE 1-38-3917/P2, APPENDED.

The Methods shall be implemented in the order given unless it is stated to the contrary.

**Method 1 : Supervision by an arboriculturist shall take place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are :**

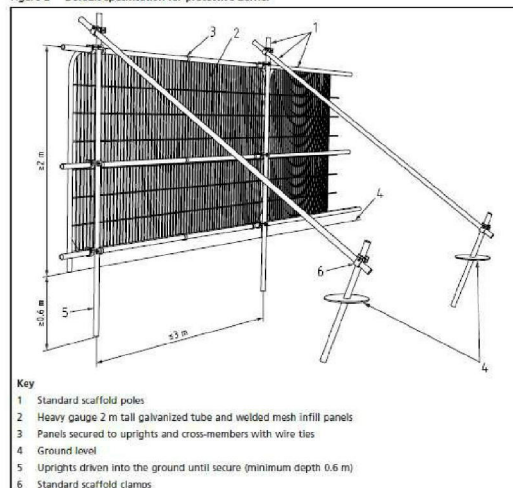
- 1) At site possession by contractor, outline all tree protection measures with site agent and resolve any issues arising. Ensure remedial tree work including any minor accommodatory tree work required for erection of scaffolding near trees is carried out to specification and sign off. Ensure protective fencing is erected and completed as proposed. Ensure site cabins, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
- 2) Supervise lifting of hard surfacing near trees.**
- 3) Supervise laying of geotextile combination ground protection and sign off.**
- 4) Attend as required to supervise digging for and the laying of lighting cable ducts or services.**
- 5) Approve timing of removal of protective fencing (post main phase) and sign off.**

##### **Method 2 : TREE WORK**

Tree work shall be in accordance with the provided specification and good arboricultural practice, and to BS 3998:2010 'Tree Work - Recommendations'. Any dead wood shall be removed where overhanging the site. The stumps of certain trees (3 & 5 - see SCHEDULE

appended) shall be removed by mechanical stump grinder, not by mechanical excavator.

Figure 2 Default specification for protective barrier



**Method 3 : TREE PROTECTION FENCING**

This method shall apply where indicated by pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section 6.2.2.2., Figure 2 :

No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines.

**Method 4 : TREE PROTECTION**

Tree protection fencing 2.5m high (or to first branch,

whichever is lower) placed around the trunks of trees 6 and 7 shall be erected, consisting of hoarding of manufactured board and uprights, no part of which is to be attached to the tree.

**Method 5 : GROUND SURFACE HANDLING and PROTECTION**

This method shall apply in the zone hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. Any existing hard surfacing, any existing surface debris, light vegetation, etc., that lies within the zone shall be removed using hand tools only. A 2D geotextile membrane, such as 'Treetex T300' type shall be laid; 100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area may be used for pedestrian access. Scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

**Method 6 : TEMPORARY ACCESS - INTENSIVE SITE**

This method shall apply in zone gridded green on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used, except if standing on completed formation as outlined below. An HDPE impermeable membrane shall be laid over the surface ; 100mm depth sharp sand shall be laid over membrane ; edge restraint shall be of timber formwork around the entire perimeter of the zone ; such edge restraint shall stand 50mm above finished concrete-pour level to prevent concrete leaching into the soil ; concrete shall be poured to a depth of 100mm over sharp sand layer. On completion of construction phase or when all need for vehicular access to the zone has ceased, slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools. Any subsequent works in this zone shall be

**carried out as per Method 11 : TRANSITION FROM TEMPORARY ACCESS TO PERMANENT POROUS DRIVEWAY /CAR PARKING.**

**CONSTRUCTION PHASE**

PLEASE READ WITH PLAN REFERENCE 1-38-3917/P3, APPENDED.

The Methods shall be implemented in the order given unless it is stated to the contrary.

**Method 7 : TREE PROTECTION FENCING**

Tree protection fencing shall be maintained/adjusted, as per Method above. The fencing shall include, as indicated on plan, the protection of areas where planting is proposed.

**Method 8 : GROUND SURFACE HANDLING and PROTECTION**

This method shall apply in the zone(s) hatched **blue** on plan. Ground protection as per Method above shall be maintained/adjusted.

**Method 9 : ROOT PRUNING**

This method shall apply within any RPA (**orange** circles). Any roots encountered shall be trimmed to the edge of excavation using a sharp edge tool such as handsaw or secateurs; the cuts shall be made at right angles to the long axis of the root, and in accordance with BS3998:2010, 8.6. An HDPE membrane shall be placed between any root-bearing soil and any wet concrete to be poured. Impermeable sheeting (to exclude wet concrete) shall be laid and secured locally by temporary weighting as required. Concrete casting shall take place without disturbing this protective layer.

**Method 10 : SERVICE TRENCHES**

N.B. -This applies to ALL services : Electricity, gas, water, etc. Existing services shall be utilised wherever possible.

These methods shall apply generally within any RPA (**orange** circles).

1) The trench shall be opened with an air-spade to required depth.

OR

2) The trench shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. No roots over 20mm diameter shall be cut. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of trench is dug.

OR

3) Services shall be thrust-bored using trenchless techniques (compressed air-driven 'mole') at a depth of 700mm or more below ground level, entailing no surface excavation. Starter pits for rams shall be outside any RPA, or reception/starter pits shall be opened according to 1) or 2) above.



**Method 11 : TRANSITION FROM TEMPORARY ACCESS TO PERMANENT POROUS DRIVEWAY /CAR PARKING**

This method shall apply in zone gridded **green** on plan. On completion of construction phase or when all need for construction-related access to the zone has ceased, the temporary slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools. The underlying sub-base shall be left undisturbed if it is competent to support the domestic-use loads envisaged. Otherwise no excavation below the underside of the existing sub-base shall take place. A 2D geotextile such as 'Treetex' type, shall be laid directly on the ground surface or over existing sub-base. Levels can be corrected by use of granite chippings - NO FINES. Slabs or pavements shall be laid open-jointed and the joints rammed with granite chippings. (All design subject to engineering approval, but used on other sites and known to be practicable and reliable).

**Method 12 : GROUND PREPARATION IN ROOT PROTECTION AREAS**

This method shall apply after completion of main build only. Operations shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Weed treatment if required shall be via BASIS qualified operatives. Ground preparation within root protection areas shall entail removal of perennial shrubs, climbers, ground covering plants to just above ground level. Surface debris shall be removed by hand to barrow and disposed of outside root protection areas. No wheeled or tracked plant shall be used : hand held power tools such as clearing saws and strimmers may be used. Any dressing with topsoil (to BS3882 : 2007- multi-purpose topsoil) shall be restricted to a maximum of 100mm in depth. Turfing or seeding may take place after levelling and minimal consolidation and which shall be hand tools / foot and board only, or naturally. No mechanical compaction whatever shall be used. Tree planting shall be in accordance with British Standard 8545:2014 'Trees : from nursery to independence in the landscape - Recommendations'. This enshrines good arboricultural practice: the tree shall be planted so that the root collar lies at finished ground level, shall be short-staked and tied with proprietary tree tie. Any hedging whips shall be staked and protected with proprietary growing tube. The ground surface shall be mulched within 0.75m of the trunk location to a depth of 100mm with composted organic material or proprietary mulch mat.

**Method 13 : In addition to the above, careful general operation and site handling shall be observed as outlined at 06.03 below.**

**06.03**

**GENERAL TREE PROTECTION METHODS**

- A) No fires shall be made on any part of the site, or within 20m of any tree to be retained.
- B) No spilling or free discharge of wet mortar, concrete, fuels, oils, solvents, or tar shall be made on any part of the site.

- C) No storage of wet materials shall be made within the protective fences.
- D) No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

**06.04**

It is recommended that acceptance of the recommendations in this report is demonstrated by, for example, the architect specifying in writing to the building contractor that tree care conditions apply in execution of the contract, and by an estimate or written undertaking from the contractor to the architect demonstrating that the practical aspects of observation of such recommendations have been priced in.

**07**

**General**

If conflicts between any part of a tree and the building(s) arise in the course of development these can often be resolved quickly and at little cost if a qualified arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can spoil design aims and can of course affect saleability, and reflect poorly on the construction and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development.

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Date: 3<sup>rd</sup> May 2016

Signed:



John C. M. Cromar, Dip.Arb.(RFS) F.Arbor A.

01582 808020 / 07860 453072

## APPENDICES

### 08

#### Tree Data

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m <sup>2</sup> )	Comments	Life expectancy (years)	Assessed BS5837 value category
1	bay	6.5	434	5208	85	Clipped to ball / mop form, with clean stem.	20+	C1
2	bay	6.5	288	3456	38	Clipped to ball / mop form, with clean stem. Extensively decayed trunk.	20+	C1
3	bay	6.5	432	5184	84	Clipped to ball / mop form, with clean stem.	20+	C1
4	bay	6.5	359	4308	58	Clipped to ball / mop form, with clean stem.	20+	C1
5	bay	6.5	259	3108	30	Clipped to ball / mop form, with clean stem. Large dead spur.	10+	C1
6	London plane	16	701	8412	222	Pollarded, regularly maintained; last pruned 2015.	40+	C1
7	London plane	14	740	8880	248	Pollarded, regularly maintained; last pruned 2015.	40+	C1
8	yew	5	100, 100, 80, 80	2173	15	Shrub form; some local screening value	40+	C1
9	Leyland cypress	6	325	3900	48	Very poor form; some local screening value	20+	C1
H10	yew	4	<150	1800	10	Growing immediately behind retaining wall. No RPA on site. Some local screening value.	40+	C2

<b>Tree number</b>	<b>Tree type</b>	<b>Height</b>	<b>Stem diameters</b>	<b>Radius of RPA if circle (mm)</b>	<b>RPA (m<sup>2</sup>)</b>	<b>Comments</b>	<b>Life expectancy (years)</b>	<b>Assessed BS5837 value category</b>
11	Leyland cypress	5	325	3900	48	Very poor form; some local screening value. No RPA on site.	20+	C1
12	holly	8	150, 150	2545	20	No access. Local screening value.	40+	B1
13	Japanese maple	4.5	100, 150, 120	2598	21	Shrub form	20+	C1

In all cases, in the absence of negative comment on vitality, normal physiological condition should be considered to apply.

Deciduous trees were not in leaf at the time of inspection. This may have limited precise identification.

**09**  
**Schedule**

***Trees at 26 Rosecroft Avenue, London, NW3 7QB***

Please read in conjunction with plan 1-38-3917/P2.

<b>Tree number</b>	<b>Tree type</b>	<b>Height</b>	<b>Stem diameters</b>	<b>Comments</b>
1	bay	6.5	434	Remove including stumps.
2	bay	6.5	288	
3	bay	6.5	432	
4	bay	6.5	359	
5	bay	6.5	259	

**NOTES:**

All tree work should be carried out to BS 3998 : 2010 'Tree Work - Recommendations'. The Wildlife and Countryside Act 1981 protects with certain exceptions all birds and their nests. It is an offence to destroy such nests or take or injure such birds in the course of tree works operations. If a tree is a bat-roost, a licence to work on the tree must first be obtained from the relevant Statutory Nature Conservation Organization (in England : Natural England 0845 601 4523.) Acting without a licence is likely to be justifiable only in acute emergencies threatening human life and where all other legally available option such as footpath diversion, fencing and warning signs cannot be applied.

Ivy and dead wood can be important ecological features. Ivy where specified in the work schedule should be treated as per BS3998 section 7.12. In summary this means trimming back (e.g. with a hedge cutter or secateurs) to near the line of the trunk or branches, and/or removing selected stems so that the structure of the tree can be inspected. In practice this may need to be done outside the bird-nesting season. Treatment of dead wood shall be as per section 7.3.2 – essentially shorten if possible, thus retaining some resource for invertebrates, etc.

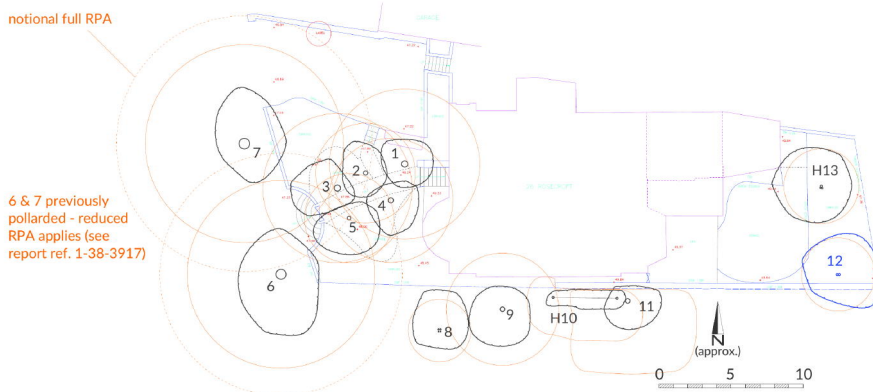
**10**

**Plans**

1-38-3917/P1

1-38-3917/P2

1-38-3917/P3

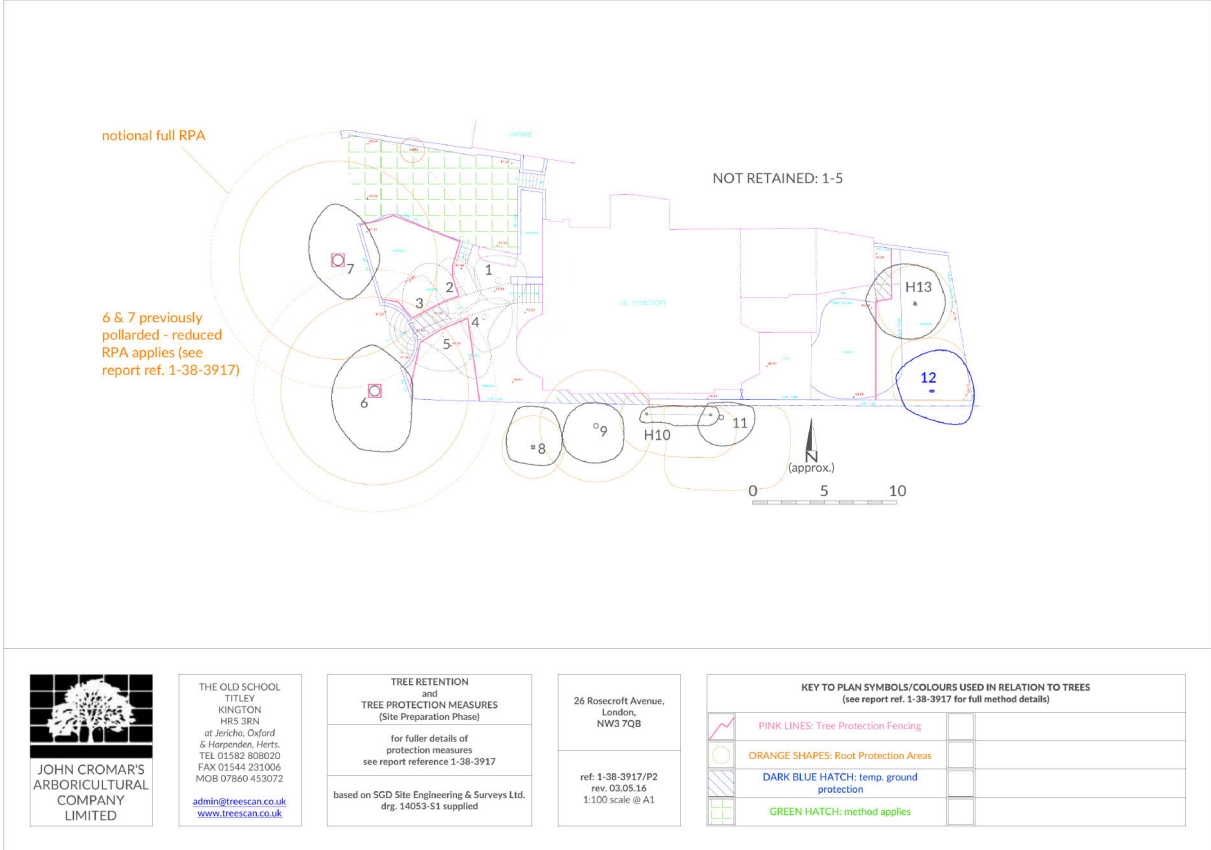


THE OLD SCHOOL  
TITLEY  
KINGTON  
HR5 3RN  
at Jericho, Oxford  
& Harpenden, Herts.  
TEL 01582 808020  
FAX 01544 231006  
MOB 07860 453072  
[admin@treescan.co.uk](mailto:admin@treescan.co.uk)  
[www.treescan.co.uk](http://www.treescan.co.uk)

TREE VALUE ASSESSMENT  
as per BS5837:2012  
&  
Root Protection Areas  
for full details of  
tree value see report  
reference 1-38-3917  
based on SGD Site Engineering & Surveys Ltd.  
drg. 14053-S1 supplied

26 Rosecroft Avenue,  
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ref: 1-38-3917/P1  
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KEY TO COLOURS/LINETYPES USED IN RELATION TO TREES	
GREEN - High Value	TOOTHED LINE: Tree spread line
BLUE - Moderate Value	DASHED LINE: Understorey spread line
BLACK - Low Value	DOTTED LINE: Removed tree spread
RED - Remove/Very short life expectancy	
ORANGE SHAPES: Root Protection Areas	



THE OLD SCHOOL  
TITTLEY  
KINGTON  
HR5 3RN  
at Jericho, Oxford  
& Harpenden, Herts.  
TEL 01582 808020  
FAX 01544 231006  
MOB 07860 453072  
[admin@treescan.co.uk](mailto:admin@treescan.co.uk)  
[www.treescan.co.uk](http://www.treescan.co.uk)

**TREE RETENTION  
and  
TREE PROTECTION MEASURES**  
(Site Preparation Phase)

for fuller details of  
protection measures  
see report reference 1-38-3917

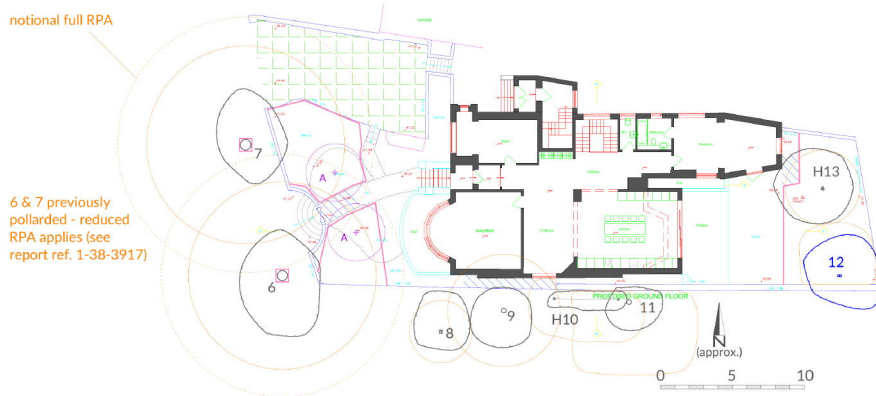
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26 Rosecroft Avenue,  
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NW3 7QB

ref: 1-38-3917/P2  
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1:100 scale @ A1

KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES (see report ref. 1-38-3917 for full method details)	
	PINK LINES: Tree Protection Fencing
	ORANGE SHAPES: Root Protection Areas
	DARK BLUE HATCH: temp. ground protection
	GREEN HATCH: method applies





THE OLD SCHOOL  
TITLEY  
KINGTON  
HR5 3RN  
at Jericho, Oxford  
& Harpenden, Herts.  
TEL 01582 808020  
FAX 01544 231006  
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[admin@treescan.co.uk](mailto:admin@treescan.co.uk)  
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**TREE RETENTION  
and  
TREE PROTECTION MEASURES**  
(Construction Phase)

for fuller details of  
protection measures  
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based on Hestia drg. PL101 supplied

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ref: 1-38-3917/P3  
rev. 03.05.16  
1:100 scale @ A1

**KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES**  
(see report ref. 1-38-3917 for full method details)

	PINK LINES: Tree Protection Fencing		GREEN HATCH: ground protection
	ORANGE SHAPES: Root Protection Areas		
	DARK BLUE HATCH: temp. ground protection		
	'A': Proposed replacement planting		