

1-38-3874

REPORT

on the impact on trees

of proposals for development

at

8, Langland Gardens, London, NW3 6PY

(21st December 2015)



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01

Introduction and Instructions

I am instructed by Brod Wight Architects on behalf of clients to make an assessment of tree amenity value and condition of trees at 8 Langland Gardens, London, NW3 6PY and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 30th October, 2015 in order to carry out an inspection.

02

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02.01

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03

Notes

03.01

PLANS

1-38-3874/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

1-38-3874/P2 and 1-38-3874/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 :

Greenhatch Group 22590_01_TOPO (existing)

Brod Wight Architects 1048-AP01A (proposed)

05

Appraisal

05.01

AMENITY / SCREENING BY TREES AND SHRUBS

Certain trees are of significant general public amenity value, as they are either situated along the frontage of - or visible from - Langeland Gardens. Several of the trees are of mainly 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.)

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 minor encroachment on the RPA of certain retained trees is entailed, as analysed in the table below :

No.	Tree	RPA in sq.m.	Area sq.m affected	Percentage affected	Notes
4	lime	104.23	11.53	11.06	Proposed structure
4	lime	104.23	1.08	1.04	Proposed steps
5	sycamore	14.66	0.16	1.09	Proposed structure
7	sycamore	79.30	4.83	6.09	Proposed structure
7	sycamore	79.30	1.95	2.46	Proposed steps

In the writer's now extensive experience gained over nearly a third of a century in arboriculture, controlled, limited-extent, vertical root cutting of the kind that may potentially be involved here (and which see below) 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 very 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 in this case all trees to be retained can be adequately protected by exclusion fencing and other arboricentric measures (which minimise root cutting) proposed below.

05.05

PERCEPTION OF TREES

The majority of the significantly-sized retained trees are located mainly to the N and E of the habited parts of the proposed dwelling. This is typically an unproblematic orientation. The proposed extension to the dwelling is in a similar position to the 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. In view of the above 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 minimal encroachment on the crowns of retained trees will occur. It is of note that the form of the trees is such that the defining branch structure is well above or clear of the proposed building line. These trees do not require major pruning, and the species involved responds well to pruning. The minor pruning perhaps required for scaffolding erection is of no importance to the health or appearance of the retained items under discussion (trees 4, 5, 7), and can easily be addressed by tree surgery in accordance with BS5837:2012 5.3.4 (c) NOTE 2, 7.7.3, etc., and is within the bounds of good arboricultural practice and British Standard 3998:2010 'Tree work – Recommendations'. This should be to method below. A schedule for the use of a contractor appears below.

05.08

TREE REMOVAL APPRAISAL and REPLACEMENT PLANTING

Please see section 08 for comments on the individual trees proposed for removal. The removal of two trees of poor quality and low amenity value is proposed. The removal of 1 is required for safety reasons as the base is badly



decayed (see photo above). In my view, their loss is satisfactorily addressed by proposed planting as specified below. The British Geological Survey information for the area indicates that the underlying sub-soil is London clay. This places no significant constraint on species selection for tree and other planting. See plan for locations:

'A' = cypress oak (*Quercus robur* 'Koster') 16-18cm girth 85L pot

'B' = Japanese maple (*Acer palmatum* 'Osakazuki') 2-2.5m 45L pot

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.”

05.10

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

05.11

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 1-14

SITE PREPARATION PHASE

PLEASE READ WITH PLAN REFERENCE 1-38-3874/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 any 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

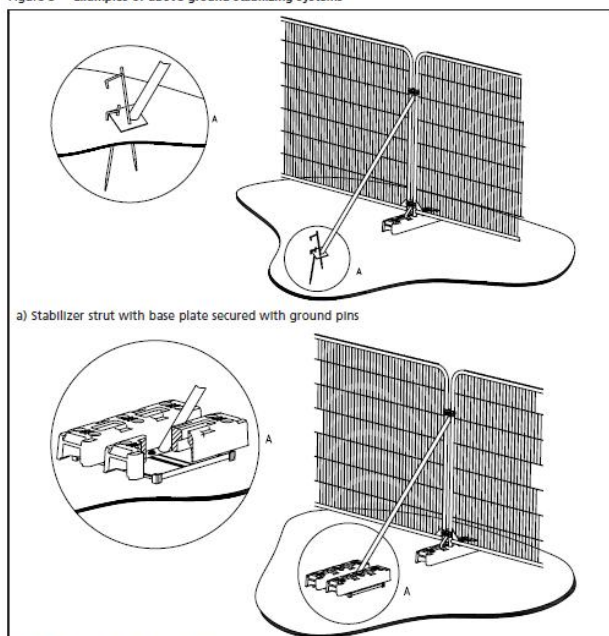
Tree work shall be in accordance with the provided specification and good arboricultural practice, and to BS 3998:2010 'Tree Work - Recommendations'. Branches shall be pruned to clear scaffold line to 6m above ground level. Dead wood shall be removed where overhanging the site. The stumps of trees 1 & 6, see SCHEDULE appended shall be removed by mechanical stump grinder, not by mechanical excavator.

Method 3 : TREE PROTECTION FENCING

Tree protection fencing shall be erected, consisting of 'Heras' type fencing (weld-mesh panels), each section securely attached to uprights

driven at least 0.6m into ground, as per the layout as shown on the plan (pink lines). No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines. The standard rubber supports ('elephant's feet') shall if used, be as per BS 5837:2012 section 6, figure 3, left.

Figure 3 Examples of above-ground stabilizing systems



Below the crowns of trees with branches extending to less than 2m above ground level, in order

to avoid unnecessary pruning, it is permissible to replace sections with manufactured boards at least 11mm thick (hoarding), attached securely to timber uprights driven at least 0.6m into the ground, providing the finished fence stands at least 1.5m above ground level. The fencing shall include, as indicated on plan, the protection of an area where planting is proposed.

Method 4 : 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 5 : TEMPORARY ACCESS

This method shall apply in zone **gridded green** on plan. No reduction of levels shall take place _ the existing hard surfacing shall be retained to protect the ground surface and underlying RPA (root protection area). Any subsequent works in this zone shall be carried out as per Method:

Method 6 : DEMOLITION of RETAINING WALL

This method shall apply in the zones of **cyan fill** on plan. Demolition shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed by hand to skip for disposal off site.

CONSTRUCTION PHASE

PLEASE READ WITH PLAN REFERENCE 1-38-3874/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.

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. Any concrete casting shall take place without disturbing this protective layer.

Method 10 : SERVICE TRENCHES

N.B. -This applies to ALL services : Electricity, gas, water, drainage, 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 : MICRO PILE or PAD LOCATION for STEPS METALWORK SUPPORT

This method shall apply within the magenta fill zones on plan. No general reduction whatever of existing ground levels shall take place. Boarding out as per Method 8 above shall be locally removed. The trial pits to determine pad/micro pile (e.g. nominal 150mm dia. screw pile) locations shall be dug with hand tools only, or opened with an air-spade to required depth. N.B. The precise location of pads/micro piles is flexible within a dimension to be determined by retained engineer. If hand digging is adopted, 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 hole is dug. It shall be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of trial pit, as this would be sufficient reason to terminate the operation and consider its purpose complete or would entail the moving of the trial pit to a different location. If a root > 20mm diameter is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist. Trial pits to determine suitable pad/pile locations shall be taken to 0.6m below ground level.

Method 12 : TEMPORARY ACCESS TO BECOME PERMANENT POROUS DRIVEWAY /CAR PARKING

This method shall apply in zone gridded green on plan. 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.

Method 13 : GROUND PREPARATION FOR TREE PLANTING AREAS

This method shall apply after completion of main build only. Ground preparation for tree planting areas shall entail removal of hard surfacing using hand tools or hand-held power tools only, the removal of degraded or compacted or contaminated soil to a depth of at least 0.6m below finished surrounding ground level. The base and sides of the pit shall be forked over to at least one hand fork's spit in depth. Screened topsoil (to BS3882 : 2007- multi-purpose topsoil) shall be laid to replace soil volume removed and to a minimum depth of 0.6m within 1.3m of the trunk location of each tree to be planted. Soil handling of any kind 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. 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 14 : 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.

date: 21st December 2015

Signed:

A handwritten signature in black ink, appearing to read 'John Cromar', with a long horizontal flourish extending to the right.

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

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APPENDICES

08

Tree Data

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m ²)	Comments	Life expectancy (years)	Assessed BS5837 value category
1	ash	15	430	5160	84	Badly decayed at base. Remove.	< 10	C
2	hornbeam	8	550	6600	137	Heavily reduced 2015; important screen	40+	B1
3	ash	15	200	2400	18	Etiolated; no access	40+	C1
4	lime	13	480	5760	104	Heavily reduced 2014 or 2015; potentially important screen	40+	B1
5	sycamore	9	180	2160	15	Very poor form	40+	C1
6	oak	8	260	3120	31	Poor form; forked at 1.4m	40+	C1
7	sycamore	14	320,270	5024	79	Reduced but important screen	40+	B1
8	lime	14	400	4800	72	No access; reduced but important screen	40+	B1
9	Japanese maple	5	90,90, 80,60	1942	12	Shrub	20+	C1
10	bay	7	160,140, 110,140, 110,140, 80	3991	50	Not of significant screening importance	40+	C1
11	oak	7	240	2880	26	No access; strong lean	40+	C1
12	lime	18	425	5100	82	No access; contribution to screen	40+	B1
13	London plane	23	950	11400	408	Large and visually important.	40+	A2
14	fig	3	130	1560	8	Local amenity	20+	C1
15	fig	3	140	1680	9		20+	C1
16	<i>Magnolia</i>	5	160,140	2551	20	Poor form but local amenity value	20+	C1
H17	Leyland cypress	4	< 100	1200	5	Useful local screening	40+	C2

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m ²)	Comments	Life expectancy (years)	Assessed BS5837 value category
H18	Leyland cypress	4	< 100	1200	5	Useful local screening	40+	C2
H19	Leyland cypress	4	< 100	1200	5	Useful local screening	40+	C2

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

Schedule***Trees at 8 Langland Gardens, London, NW3 6PY***

Please read in conjunction with plan 1-38-3874/P2.

Tree number	Tree type	Height	Stem diameters	Comments
1	ash	15	430	Remove.
6	oak	8	260	

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.

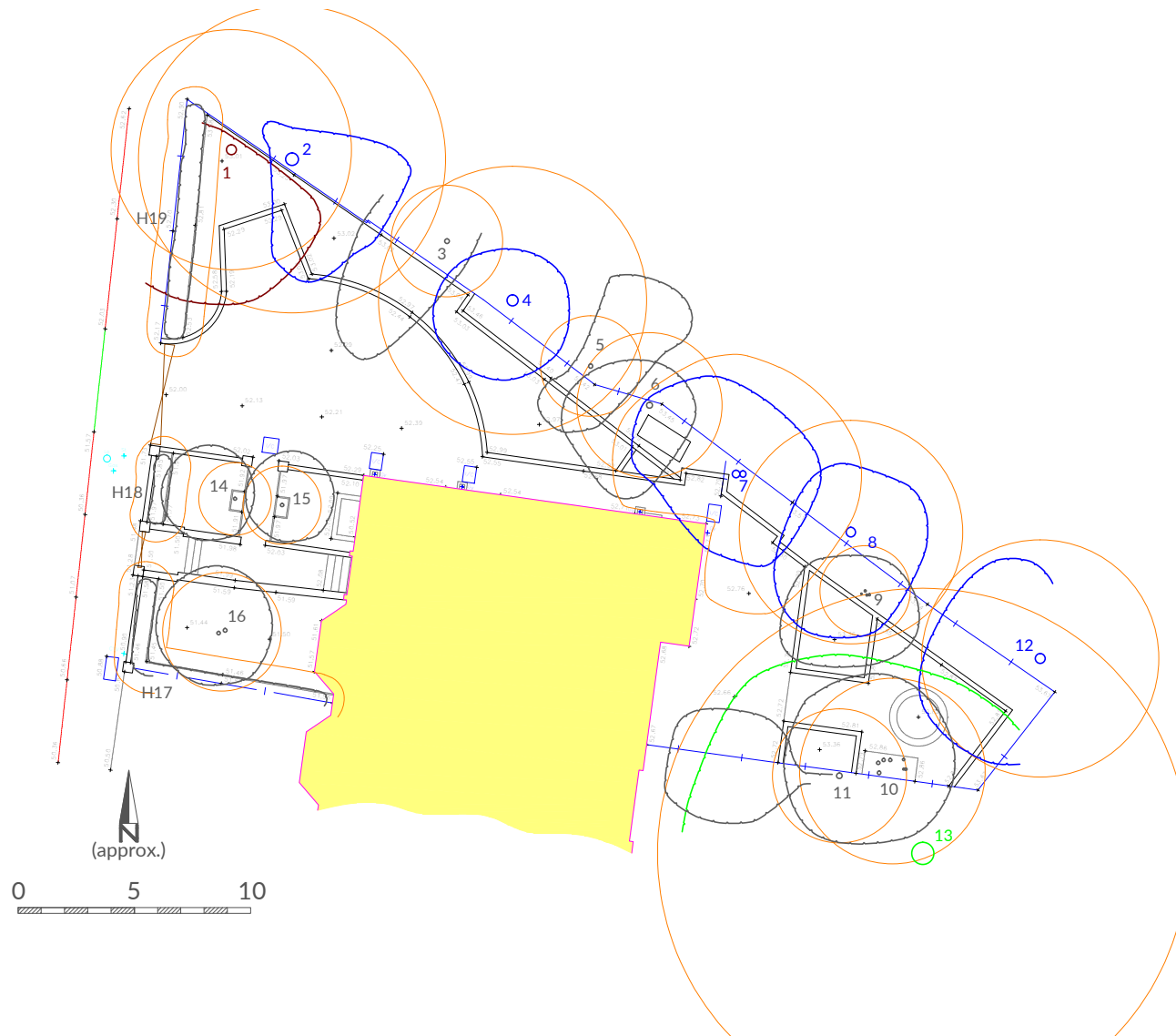
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Plans

1-38-3874/P1

1-38-3874/P2

1-38-3874/P3



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TREE VALUE ASSESSMENT
as per BS5837:2012
&
Root Protection Areas

for full details of
tree value see report
reference 1-38-3874

based on Greenhatch Group drg.
22590_01_TOPO supplied

8 Langland Gardens,
London, NW3 6PY

ref: 1-38-3874/P1
rev. 09.11.15
1:100 scale @ A1

KEY TO COLOURS/LINETYPES USED IN RELATION TO TREES

GREEN - High Value
BLUE - Moderate Value
BLACK - Low Value
RED - Remove/Very short life
expectancy
ORANGE SHAPES: Root Protection
Areas



TOOTHED LINE: Tree spread line

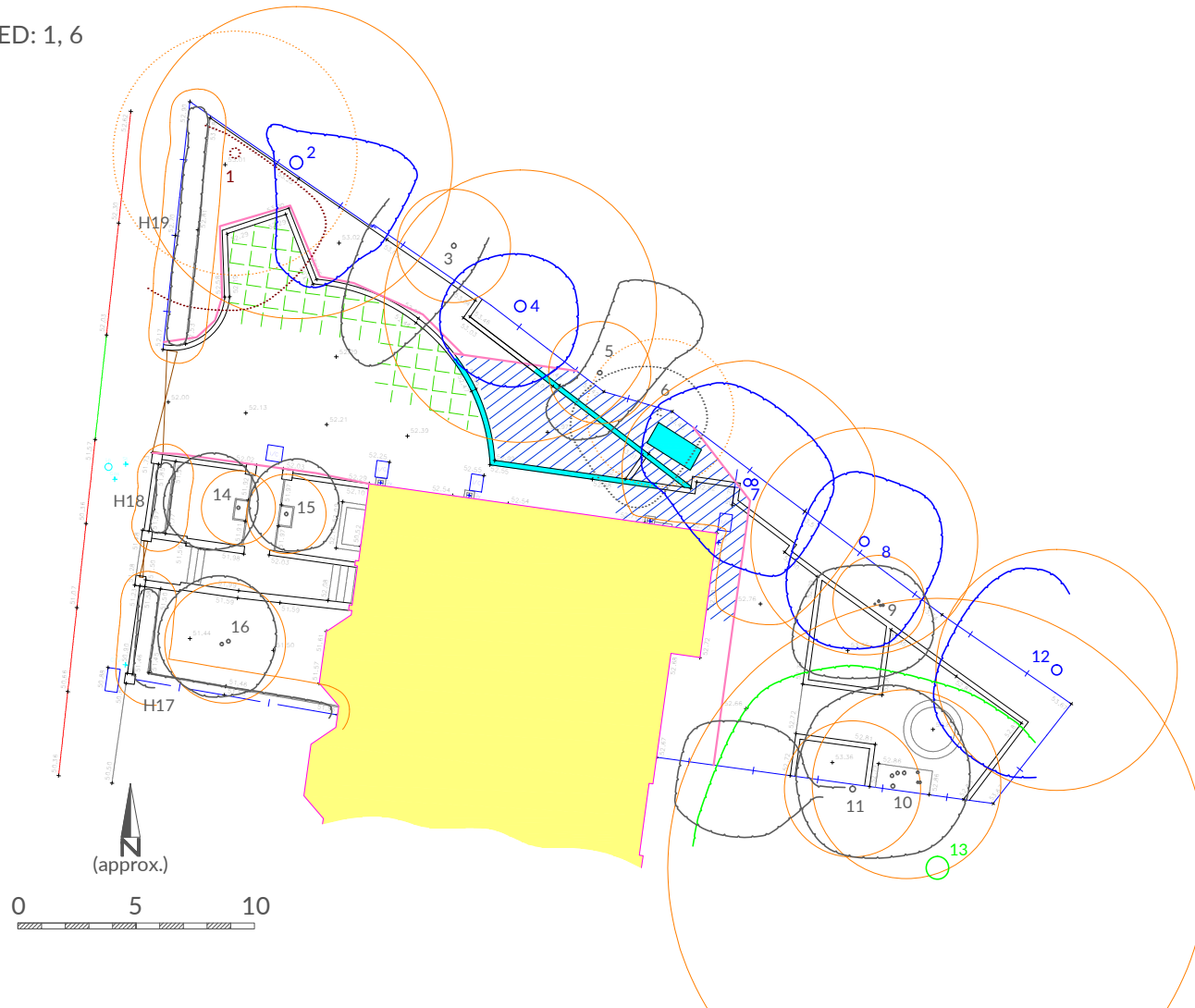


DASHED LINE: Understorey spread line



DOTTED LINE: Removed tree spread

NOT RETAINED: 1, 6



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

for fuller details of
protection measures
see report reference 1-38-3874

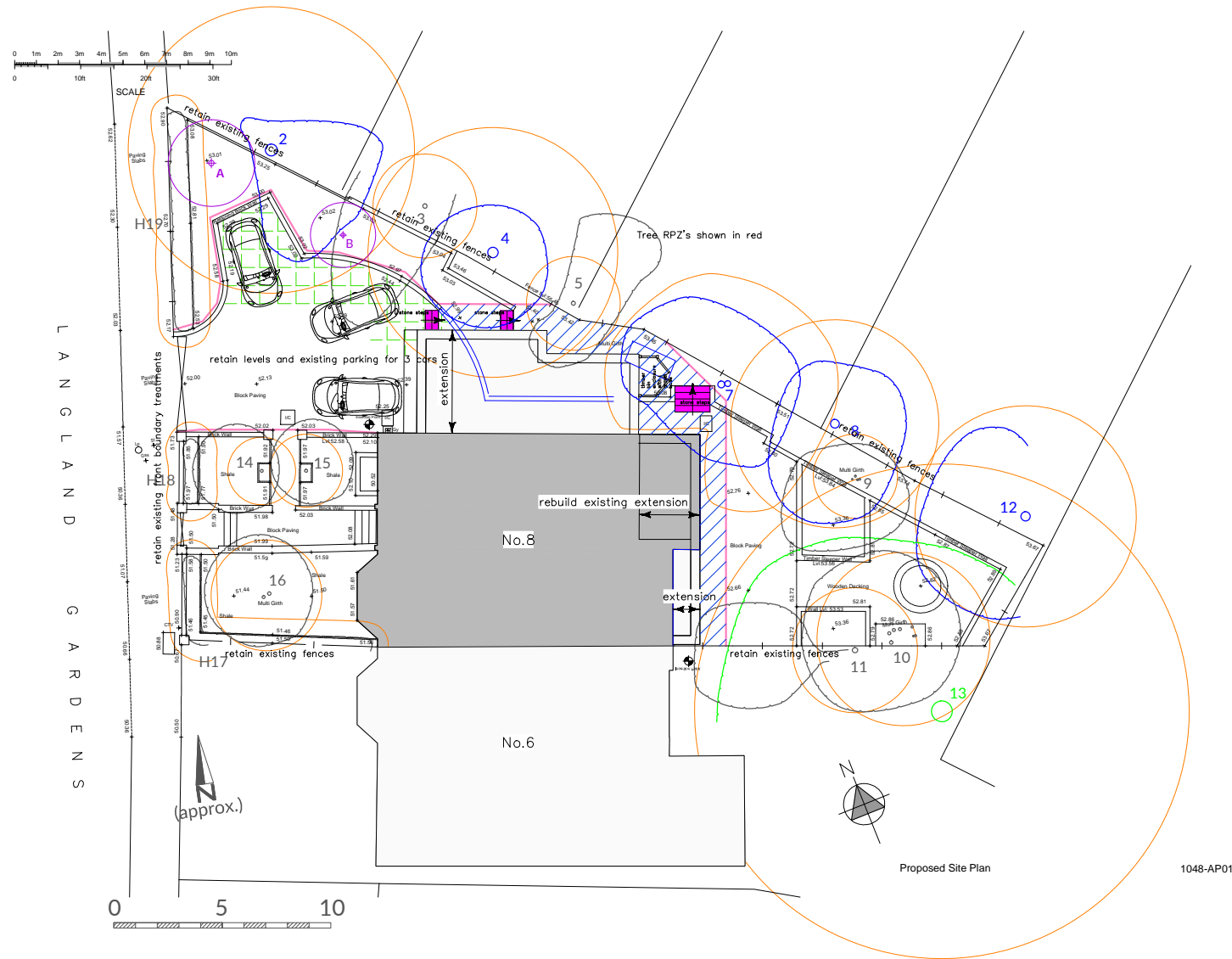
based on Greenhatch Group drg.
22590_01_TOPO supplied

8, Langland Gardens,
London,
NW3 6PY

ref: 1-38-3874/P2
rev. 17.12.15
1:100 scale @ A1

KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES
(see report ref. 1-38-3874 for full method details)

	PINK LINES: Tree Protection Fencing		CYAN FILL: method applies
	ORANGE SHAPES: Root Protection Areas		
	DARK BLUE HATCH: temp. ground protection		
	GREEN HATCH: ground protection		



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TREE RETENTION
and
TREE PROTECTION MEASURES
(Construction Phase)

for fuller details of
protection measures
see report reference 1-38-3874

based on Brod Wight Architects
drg. 1048-AP01A supplied

8, Langland Gardens,
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ref: 1-38-3874/P3
rev. 22.12.15
1:100 scale @ A1

KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES
(see report ref. 1-38-3874 for full method details)

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