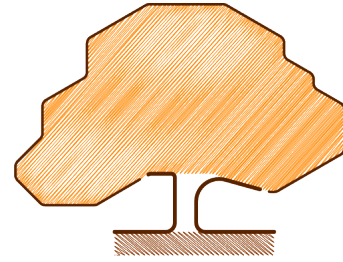


S844-J2-IA-1

REPORT

regarding the impact on trees of proposals for development
at
Flat 4, Oakhill House, Oakhill Park, London, NW3 7LP



JOHN CROMAR'S
ARBORICULTURAL
COMPANY LTD

www.treescan.co.uk
admin@treescan.co.uk

01582 808020
07860453072



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



Company Registration No. 5195523. Registered in England and Wales. Registered Office: The Old School, Titley, HR5 3RN

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1 Instructions

I am instructed by Omar Shafi to make an assessment of tree amenity value and condition of trees at Flat 4, Oakhill House, Oakhill Park, London, NW3 7LP and of the impact of a proposal for development (an extension) on such trees, and to supply an arboricultural methods statement and tree protection plan for use in supporting an application for local planning authority (LPA below) consent. The design and access statement / design summary submitted by Brod Wight Architects describes the scheme.

2 Executive summary

The impact on public amenity connected to how trees will be affected by the scheme is assessed to be negligible. The scheme will require no trees to be removed. All retained trees will be easily protected from harm during the project.

3 Introduction

3.1 The environmental role of Local Planning Authorities

LPAs play an important part in the almost continual balancing act that is part and parcel of contemporary democratic government. They regulate development in the interests of the community. Increasingly, the environment plays a role in our lives, and strongly affects our health, both mental and physical. This is typically recognised in planning policy determined by LPAs, and the formal planning guidance published by them. LPAs process planning applications in line with this policy and guidance.

3.2 British Standards

These continue to play a significant role in the quality of our lives in the UK, by defining minimum standards for many products, and making recommendations where precise, exhaustive specifications are not absolutely possible, for example with services.

3.3 British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

BS 5837:2012 (the Standard, below) is the fourth version in a series, the first being in 1980. This Standard provides a framework for the valuation, in ornamental terms, of trees, and gives recommendations for their protection on building sites.

3.4 How the Standard is used by an arboriculturist

It is used as a tool by an arboriculturist, who for the purposes of this type of professional activity, is someone who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction. This is the profession which is concerned, in a wider sense, with the care and cultivation of trees for amenity (all the benefits). An arboriculturist, then, uses the Standard:

- a) to assess the value, in terms of amenity, of the trees on and adjoining a particular site, whether such trees are formally protected or not, for example by reason of being in a Conservation Area or because they are scheduled within a Tree Preservation Order.

(Both of these provisions are part of the Town and Country Planning Act 1990, part VIII.);

- b) secondly, to help assess the impact upon the trees of the proposal for development;
- c) lastly, to give ways of protecting retained trees during construction, should the proposal receive planning consent.

3.5 How the arboriculturist prepares tree protection methods

In practice, as advances in materials and techniques are rapid, the arboriculturist does not necessarily specify a precise commercial product, but defines the essential components of methods of demolition and construction which often make use of specialized materials.

These may be termed 'tree-friendly' methods, meaning that they have as their focus the well-being of the tree. These appear on the tree protection plan(s) appended, typically titled: 'Tree Retention and Tree Protection Measures', and within the text below.

3.6 Classification of trees

The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Value means (mainly) *visual* value to the general public. It also allows for other values to be considered such as historic or conservation value. Some surveys may not find any trees of one or more categories.

Table 1 describes, as: 'U', a low-value tree; denoted by a **dark red** outline on plans, the shape of the edge of the tree's crown typically more or less concentric to the trunk position.

It also shows 'A', 'B' and 'C', in descending merit:

- 'A' category, **green** crown outline, are trees of high vitality or good form, or of particular visual importance.
- 'B' category, **blue** crown outline, are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees.
- 'C' category, **grey** crown outline are trees of no particular merit, but in adequate condition for retention.

A minimum expected safe useful life is also assessed. Please note that a low value tree may have a very long life expectancy. The two factors are only linked in that, for example, a very high value tree cannot also have a very low life expectancy.

3.7 Root protection area

'RPA' below. The RPA is a zone around the trunk of the tree, in which protective measures must be used in order to prevent significant damage to trees.

3.8 Use of appended plans

The appended plans have different applications:

- Plan reference no. S844-J2-P1, shows the spread of the crowns (the upper, leaf-bearing part of trees), and is intended to indicate the relationship of any neighbouring trees to each other. This plan gives a quick reference assessment of value as per section 4, table 1, page 9 of the Standard.
- S844-J2-P2 is the 'tree protection plan' referred to in the Standard (section 3.11). It is colour-coded to indicate where tree-friendly methods are proposed during the overall construction process, which may involve demolition, main construction and landscaping phases.

4 Observations

4.1 Site visit

I visited the property on 1st July 2022 in order to carry out an inspection. Weather conditions were good; they permitted adequate inspection.

4.2 Survey method

I used a tree mallet, spade, diameter tape, laser rangefinder, pocket retractable tape, binoculars, scaling pole, tree data recording software, pen, pencil and paper. No trees were climbed: inspection was from ground level.

4.3 Appraisal identification

My appraisals of observations, discussions and other data are italicised below, in each relevant section and paragraph. This emphasises the clear separation between data and opinion to assist the end-users: client, architect and LPA case and tree officers.

4.4 Amenity / Screening by trees and shrubs

Most of the trees are visible locally and from adjoining private curtilages. A public footpath passes to the south-east of the site.

Most of the trees listed are of some significant general public amenity value. (See cover photo / photos below).

4.5 Statutory constraints

The site is in the administrative area of London Borough of Camden.

The site stands within the Hampstead Conservation Area.

No information on TPOs is available on the local authority website.

4.6 Soil assessment

The British Geological Survey (BGS) information for the area indicates that the underlying sub-soil is sand of the Bagshot sand formation (likely on the upper parts of the site) and silt and fine-grained sand of the Claygate beds formation (likely on the lower parts of the site).

Topsoil within the site appears to derive from the underlying subsoil. I saw no evidence of soil-stripping, trenching, or level-alteration in the very recent past, although revetment has taken place in relation to the garden area within which tree 1 stands, and steps to the adjoining dwelling to the north may have been formalised or constructed in the RPAs of trees 1-5 within the last few decades. I observed no apparent compaction or drainage problems.

4.7 Measurements on site

Tree heights estimated by scaling pole.

Tree diameters measured as per the Standard, Annex C.

Tree spreads on the plans below are approximately to scale, determined on site, typically by laser rangefinder, direct measurement, pacing, sighting in relation to site features and architect-supplied plan data.

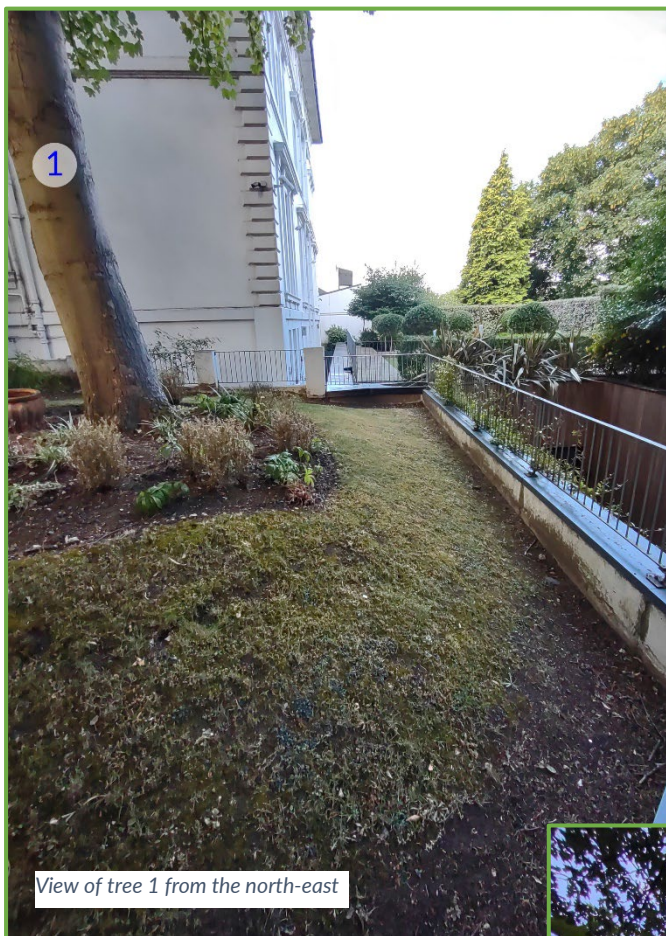
4.8 Tree data table

This is the core of the report in terms of site observations. In all cases, in the absence of negative comment below on health/vitality and structure of trees, normal physiological condition (health) and structural condition applies. Unless stated otherwise, 'tap tests' for the sonority typically associated with decay in trees were found to be normal. Unless stated otherwise, no signs of protected species were noted; for example, potential bat roost features (PRFs below). Where no height to lowest branch figure is given, the information appears completely irrelevant to planning determination. The matter of clearance above ground level is discussed under the individual tree entries if this is relevant to planning determination. (For information on other data in the columns, see section 3 above.)

Tree number	Tree type	Height (m)	Stem diameters (mm)	Radius of RPA if circle (mm)	RPA (m ²)	Comments	Life expectancy (years)	Assessed BS5837 value category
1	sycamore	20	653	7836	192.9	Of rather poor form. Reduced in height apparently around 1990 to about 14m in height, but contributes to the character of the Conservation Area.	40+	B1
2	silver lime	20	805	9660	293.2	A history of maintenance noted; standing close to the boundary; adds significantly to the screen between the adjoining Oak Hill Lodge and the site.	40+	B1
3	English oak	18	1220	14640	673.3	An old pollard. Very one-sided crown. Has some screening function between Oak Hill Lodge and the site.	40+	B3
4	English yew	9	440	5280	87.6	Dominated by adjoining oaks; rather thin in the crown; unthrifty appearance.	40+	C1
5	English oak	12	930	11160	391.3	PRFs. History of maintenance; somewhat challenged by G6 and 3	40+	B3
G6	sycamores	19				A group of trees apparently somewhat stressed by a succession of droughts; affected by fungus <i>Cryptostroma corticale</i> . Severely damage sycamores and may kill them. It can also prove to be simply an episodic problem aligning with droughts. Stabilisation of deadwood required for safety reasons; PRFs noted on eastern tree. Diameters and RPAs as per plan	20+	B2

4.9 Photos

Note on photo labelling- the numeral colour matches the colour used for the four BS 5837:2012 value categories (see 3.6 above)



View of tree 1 from the north-east



View of G6 from the north-east



5 Arboricultural impact assessment (AIA)

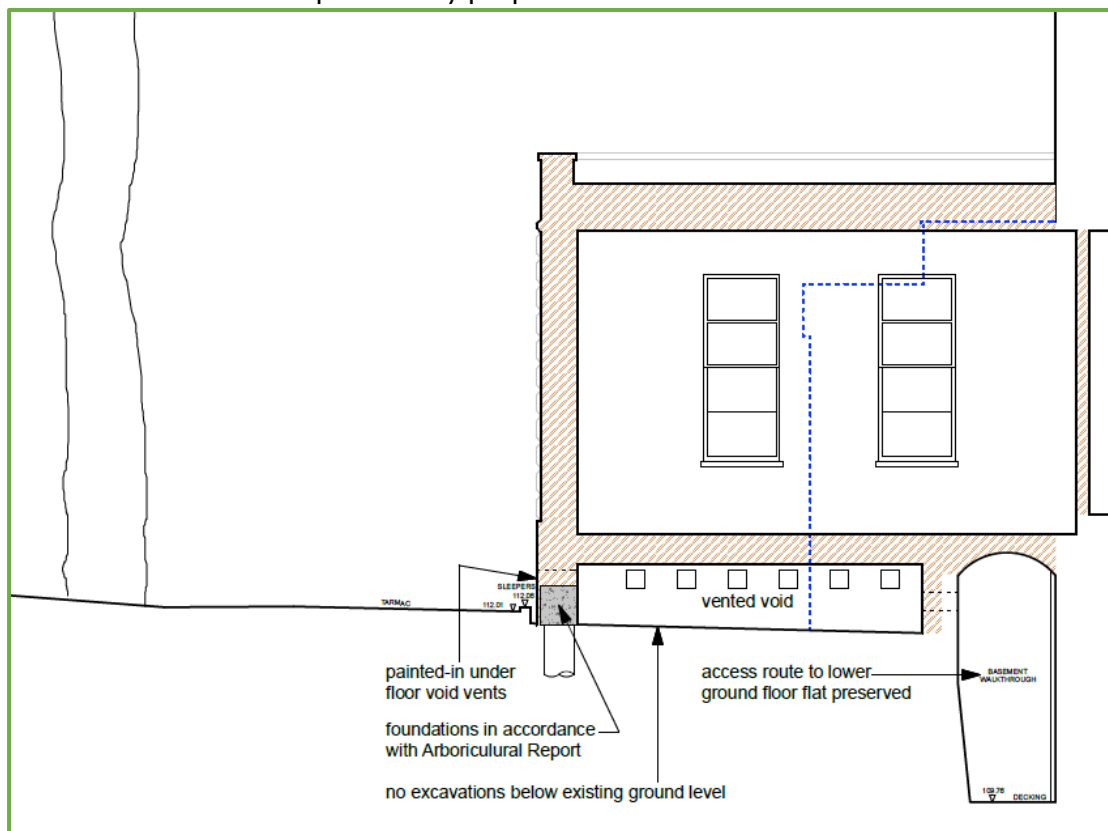
5.1 RPAs – modifications to shape

I carried out an assessment as per the Standard (section 4.6.2) in connection with the plotting of the RPAs of all trees. This section requires that site conditions such as location of various structures, the internal support mechanisms of various trees, etc., are taken into account in determining the likely position of roots. Adjoining structures have been noted in this respect. Where applicable, the modified-shape RPA, of equivalent area, has been plotted on the plans appended, shown as shapes bounded by orange, magenta, red, brown lines. Four different colours have been used in this case given the likely closely associated RPAs of various trees. The subsoil is likely to be sand and silt, typically non-shrinkable media.

Adjoining structures have likely affected the RPAs, as indicated on plans. This factor is of some overall relevance in connection with this site as it assists in defining the position of proposed tree protection.

5.2 Roots and the design

It is usual for discussions between the arboriculturist and architect to take place at an early stage following the arboriculturist's site survey. Modifications, minor or major, to the proposals as first received are typically discussed, with a view to promoting tree retention and health. I discussed with the architect certain features of the scheme in this case; the design intention has always been to fully suspend the construction to clear existing ground levels. See extract from preliminary proposed section 1127-AP08 below:



No need arose in this case to modify the design in terms of layout, as I found no significant conflicts with trees worthy of retention, q.v. below.

5.3 The static root plate (SRP) compared with RPA

SRP is an abbreviation for static root plate, (Mattheck, 1991, etc.) and means the structurally significant roots nearest the trunk: the principal roots that hold the tree upright. This is derived from a radial dimension based on trunk diameter near ground level. The RPA is a guide to where physiologically significant roots, those necessary for, primarily, water uptake, are likely to be located.

5.4 Assessment of SRP/RPA encroachment

No encroachment on the SRP of any retained tree is entailed.

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

Tree no.	Tree	RPA area (m ²)	Area affected (m ²)	% affected	Notes
1	sycamore	192.90	21.74	11.27%	extension
3	English oak	673.34	19.87	2.95%	extension
5	English oak	391.27	21.33	5.45%	extension

In view of the above I conclude that while no special footings are strictly required from the arboricultural perspective, given the modest encroachments on the RPAs in basic percentage terms, the partial confinement of the roots of sycamore 1 within the garden's retaining walls probably means that conventional footings would probably encounter (and cut) more roots than would otherwise be the case. In this case all trees to be retained can be adequately protected by exclusion fencing and tree-friendly methods – essentially a fully suspended slab - as proposed below to reduce impacts on root systems of retained trees.

5.5 Hard surfacing

The Standard (section 7.4.2.3) restricts permanent hard surfacing of any existing unsurfaced ground within the RPA of trees to be retained to 20% of the unsurfaced portion of the RPA. Some surface change to the RPA around various trees is proposed. However this change is restricted to that discussed above. I propose the RPA is managed during demolition and construction and any changes controlled by methods proposed below; any change to existing ground-bearing surfaces is proposed limited to refurbishment / repair of existing tarmac surfacing post the main construction.

As the changes do not involve root cutting, and porous material allowing roots to respire is specified in methods below, I see no basis to conclude that the trees will suffer harm, if these methods are followed carefully.

5.6 Perception of trees by building users

The proposed extended dwelling is in an almost identical position in relation to the trees as is 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 the Standard (sections 5.3.4 and 5.6.2.6) recommends) and appear not to be negative factors.

5.7 Superstructure and tree appraisal – tree pruning

In accordance with the Standard, section 4.4.2.5 (f), I note from the drawings supplied that no encroachment by the superstructure on the crowns of retained trees will occur. (See British Standard 3998:2010 'Tree work – Recommendations'.) A schedule for the use of a contractor appears within the AMS below.

5.8 Access clearance

I note from my site visit and the plans received that no retained tree conflicts with pedestrians, construction traffic, nor end-user vehicles.

5.9 Tree removal considerations in the Standard

In conserving trees on development sites, expected best practice is as in the Standard (section 5.1.1):

"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."

Thus, implicit in the process are decisions about tree removal. This is often perfectly reasonable and provides space for new trees. No trees are proposed removed.

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

5.10 Policy compliance

The LPA website was searched for relevant policy documents and supplementary planning documents (SPDs). I am aware of:

- [The Camden Local Plan](#)
- [Camden Planning Guidance - Trees](#)
- [Conservation Area statement](#)

It is ultimately for planners to determine compliance with planning policy.

I submit that the proposals in this report if observed, and the tree protection methods, if implemented, will facilitate fair compliance with any such relevant policies.

6 Conclusion

6.1 Summary

I conclude that the impact on trees of the scheme proposed, subject to implementation of the arboricultural method statement's contents, will, overall be negligible.

6.2 Note to LPA

I invite the LPA to consider, if it is minded to grant consent, the incorporation of the specific *order of implementation* of the **Arboricultural method statement** below into any Conditions applied. Such measures are likely to maximise tree protection. Finalised details of tree-handling on site during construction is typically a matter requiring the input of a main contractor within CDM regulations, and these matters in practice almost always follow planning consent, as it is typical for no contractor to have been appointed prior. The writer is willing to prepare a Construction Issue version of the AMS in due course.

7 Sources and relevant documents used

- Ground-level inspection
- Supplied plans:
 - Nigel Pavey Surveys drg. ref.: 1127-S01
 - Brod Wight Architects drg. refs.: 1127-AP01, 1127-AP08

8 Copyright

Copyright of the report above is retained by the writer. It is a report for the sole use of the client(s) named above. It and associated plans may be copied and used by the client and the LPA in connection with the above instruction only. Its reproduction or use in whole or in part by anyone else without the written consent of the writer is expressly forbidden. The AMS below, including schedule of tree work and the plan or plans, may be reproduced to contractors for the purpose of tendering, and for setting out and maintaining tree protection measures on site.

9 Arboricultural method statement (AMS)

9.1 Overview

The methods required involve not only physical arrangements on site but effective administration prior to implementation. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development. If conflicts between any part of a tree and the building(s) arise in the course of building works these can often be resolved quickly and at little cost if an arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can wreck design aims. It can of course also affect saleability, and reflects poorly on the construction and design personnel involved.

I propose that arboricultural administration takes place as outlined below. Needless to state the MC must fully comply with these proposals for them to be effective. This involves proper initial contact with the retained arboricultural consultant, followed by persisting contact, throughout the contract, until at least late landscaping stage.

9.2 Administration

A. Identification of key personnel in order of responsibility for tree protection on site

Role	Name	Company	E-mail	Mobile	Landline
site manager	TBC	TBC	TBC	TBC	TBC
main contractor	TBC	TBC	TBC	TBC	TBC
architect	Jeremy Wight	Brod Wight Architects	office@brodwight.co.uk	07973 324534	020 7722 0810
arboriculturist	John Cromar	John Cromar's Arboricultural Co.Ltd.	johncromar@treescan.co.uk	07860 453072	01582 808020

B. Induction and personnel awareness of arboricultural matters

Prior to commencement a meeting will be held on site between the arboriculturist and the site manager (who will be required to sign the awareness document 9.4 below) and during which meeting all the tree protection methods, materials, order and integration with the build programme will be considered. This document, confirming awareness on the part of personnel of the various items, will be retained for the LPA.

C. Inspection of and supervision schedule for tree protection measures, frequency and methods of site visiting and record keeping

At site possession, the tree protection measures applicable to the works, as detailed in this report will be inspected by the arboriculturist and signed off if compliant. An initial inspection will take place; a monthly inspection will take place routinely; unannounced site inspection may also be carried out. Additionally, the arboriculturist shall attend site as required by architect, or site agent, or the LPA. *All reports on site visits to be copied to the LPA within 5 days of site visit.* These reports to be compiled, and an end of project summary produced, together with any recommendations for future action.

D. Procedures for dealing with variations and incidents

As C above. Additionally, the architect shall inform the arboriculturist of any design variations or variation intention of tree protection; also, the site manager shall inform the arboriculturist if he intends to vary or deviate from the agreed tree protection methods or timing. Action in response to incidents will be commensurate with and appropriate to the nature of any such incident.

E. The order of work on the site, including demolition, clearance and building

As per tree protection methods below

F. How problems will be reported and solved

Any breaches of tree protection measures shall constitute a Tree-Related Incident ('TRI'), a report on which will be copied to architect, client and LPA. A remedial action notice will be served by the arboriculturist, copied to all parties and timescales for remediation completion monitored. *All reports on site visits will be copied to the LPA within 5 days of site visit.* Action in response to incidents will be commensurate with and appropriate to the nature of any such incident. Any breach of the stipulated timescale for remediation will trigger a further TRI report.

G. How accidents and emergencies involving trees will be dealt with

Dependent on nature of incident; as above; an e-mail with photographic inclusion will be sent by the site agent. The arboriculturist or staff will attend site to appraise the situation and determine remedial action. A TRI report will be issued, as above.

9.3 Implementation on site

It is proposed that the methods specified below are followed in their entirety. Please note that the methods are referenced by various colours, lines and hatches on the tree protection plans appended. The scale of the plans is dependent on the paper size on which any hardcopy is produced.

It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree-friendly construction methods below. It is widely not understood outside the arboricultural profession, for example, that a single traverse of a root protection area by a mechanical excavator can cause significant and permanent damage to trees, even if this is not visible immediately afterward.

N.b. The methods below are intended to be read not only by the instructing client, but also by all others concerned with processing and determining of the application. Following planning approval, the methods are finally intended for full implementation on site by the main contractor or in some cases by a DIY builder. A degree of familiarity with the language of basic building techniques is assumed. I will of course explain any unfamiliar term – see contact details on cover page, and at the end of the report.

9.4 Tree-friendly construction methods and awareness document

Section 9.4 including all the methods below should be printed out; the plans to full scale, and kept readily to hand on site. (To be read and duly completed:) I the undersigned builder / site agent / main contractor have been given a copy of the tree protection measures reproduced below and the plans S844-J2-P1 v1 and S844-J2-P2 v1 with which they are to be read. I have studied these tree protection measures on site with the arboriculturist. I have asked questions if I have been unsure about the practicability or safety of any measure. Any queries arising have been resolved. I see no reason why the tree protection should not be implemented as outlined below and undertake to take all reasonable steps within my remit to promote their installation and retention for the duration required, as outlined below.

There are 10no. methods in this set, to be implemented in the order given unless stated otherwise.

PREPARATION / DEMOLITION

Please read with tree protection plan reference S844-J2-P2, appended.

Method 1: *SCHEDULE OF TREE WORK*

Tree work shall be in accordance with the schedule below, and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread line marked on plan. Heights are in metres; diameters are in millimetres.

Tree number	Tree type	Height (m)	Stem diameters (mm)	Comments
G6	sycamores	19		Stabilize dead wood (for safety reasons). N.b. Potential bat roost features noted on eastern tree.

NOTES:

- In Conservation Areas, in accordance with TCP Act 1990 Section 211, a formal notification to the LPA is required of intention to prune or remove any trees, the removal of which is not strictly required for the construction proposed to take place. 42 days after formal notification should be allowed before proceeding with the notified work, during which time (and after) the LPA may place a Tree Preservation Order (TPO) on the tree, thus requiring a formal application for any works to living wood. No notification is required for treatment to dead wood.
- If a tree is the subject of a TPO a formal application must be made to the LPA for consent for any work to the living wood of trees, if that work is not strictly required for the construction proposed to take place.
- 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.

- 'Crown cleaning' – an umbrella term now covered by several separate sections in BS3998:2010 – should be understood to mean: removal of foreign objects (section 7.13); removal of ivy to the extent needed to facilitate inspection (section 7.12), typically 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 seen sufficiently. Dead wood can be an important ecological feature. Treatment of dead wood under 'crown cleaning' shall mean (section 7.3.2) shorten and retain if safe to do so, thus retaining some resource for invertebrates, etc.

Arisings shall be chipped and removed from site, or stockpiled outside RPAs for possible later use as mulch at landscape phase. No vehicles shall stand or operate in any of the RPAs of retained trees. Any traversing of RPAs shall be preceded by laying of temporary trackway, such as TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. This protective layer shall stay in place throughout arboricultural site preparation phase.

Method 2: 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 6.2.2, figure 3, below; that is, pinned to the substrate with re-bar.

Where required to infill odd sections, tree protection fencing may be varied to >1.8m high hoarding of >11mm thick manufactured board and timber uprights >50mm x 100mm, no part of any of which is to be attached to any tree.

No fires shall be made on any part of the site, or within 20m of any tree to be retained. No storage of materials shall be made within the protective fences. No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

Method 3: GROUND SURFACE HANDLING and PROTECTION

This method shall apply in the zones 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 'Ekotex' shall be laid; 100mm of green-source woodchip; continuously abutted scaffold

Figure 3 Examples of above-ground stabilizing systems

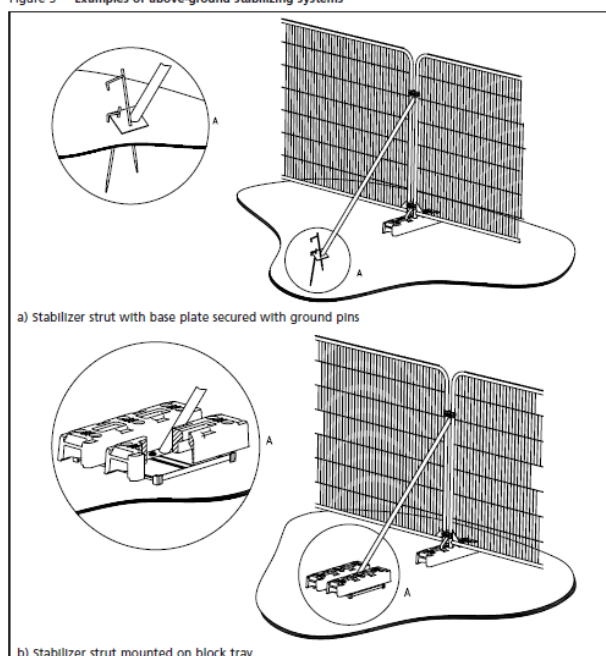


Figure 1 BS 5837:2012 section 6, figure 3

boards or manufactured boards so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, a 2D geotextile membrane, such as 'Ekotex' shall be laid, and in sequence; 100mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards.

OR

To handle loads exceeding 2 tonnes the finished tarmac car-parking, etc., surfaces shall be covered with TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Any scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

Method 4: WELFARE FACILITY

This method shall apply in the **red cross** zone. No reduction whatever in existing ground levels shall take place. Timber bearers such as modern or re-purposed railway sleepers shall be laid directly on the ground surface. Alternatively the floor and superstructure supporting frame shall be supported by micro-piles such as StopDigging proprietary or similar micro-piles inserted with hand tools only. Trial pits to determine micro-pile locations shall be dug with hand tools only. N.B. The precise location of piles is flexible. 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. No connection to services of any kind shall be made below ground level: all services in and out shall be above ground level. Below the facility leaky pipe irrigation shall be installed, to operate for approx. 2 hrs. per day, at end of afternoon, or during the hours of darkness, between April and September, or a proprietary garden irrigation system on a timing device shall be used.

Method 5: SUSPENDED TEMPORARY DECKING - STORAGE OF MATERIALS

This method shall apply in the zone of **green grid**. Suspended decking shall be erected over the area indicated on plan, supported by 100mm x 100mm timber pegs or short driven scaffold tube or timber baulks supporting a timber framework. The surface shall be TuffTrak® Euromat or AlturnaMat ground guards or similar appropriate product. The sections shall be fixed together with manufacturers' approved fixings. Alternatively, manufactured board covered by heavy-duty impermeable membrane, with falls ensuring water is drained to areas outside any RPA, and with a non-slip finish shall be laid. Below the area leaky pipe irrigation shall be installed, to operate for approx. 2 hrs. per day, at end of afternoon, or during the hours of darkness, between April and September, or a proprietary garden irrigation system on a timing device shall be used.

Method 6: DEMOLITION

This method shall apply generally. Demolition, which shall be by 'top down, sides in' method, shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed for disposal off site. None shall be spread in root protection areas (bounded by orange, magenta, red, brown lines).

CONSTRUCTION

Please read with tree protection plan reference S844-J2-P2, appended.

Method 7: 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 (bounded by orange, magenta, red, brown lines).

- 1) The trench shall be opened with an air-spade to required depth. 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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.
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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.

Method 8: PILE LOCATION DETERMINATION and FULLY SUSPENDED SLAB

This method shall apply within the magenta honeycomb zone on plan. No general reduction whatever of existing ground levels shall take place. The trial pits to determine pile locations shall be dug with hand tools only.

N.b. The precise location of piles is flexible within a dimension to be determined by retained engineer, and typically not less than 300mm along the long axis of ground beams. 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 pile locations shall be taken to 0.6m below ground level. When trial pits are complete and pile locations have been fixed, the whole area shall be treated as per Method 3 above, except where each of the pile locations lies, where an opening 400mm square centred on the trial pit may be left. The upper 3m of conventional piles shall be sleeved within root protection areas to prevent contact with wet concrete and roots. The upper 1m of any screw piles shall be sleeved with high density cardboard tubes where within the root protection areas to prevent contact between ironwork and roots. Movements of screw piling rigs and any other wheeled or tracked plant within RPAs shall be restricted to areas protected as per Method 3. Any delay between trial pit finishing and pile and beam work SHALL instigate the COMPLETE coverage

of the entire magenta honeycomb zone on plan as per Method 3 above. A void-former or formwork, supported by Method 3 formation shall be laid after piling is complete. (Any foul drainage pipes shall be placed within this space.) The slab shall be cast. After slab curing, the void former shall be removed by soaking and manual removal, or thoroughly lacerated with hand-knife ('Stanley' type) on an extension pole, and left *in situ*. Below slab vents shall be painted-in under floor type as per architect's design.

Method 9: EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING

This method shall apply in the blue hatch zone on plan that covers the finished tarmac car-parking, etc., surfaces. No 'scraping up' with a mechanical excavator shall be carried out. The existing hard surface shall be lifted by hand tools or hand-held power tools only. The underlying sub-base shall be left undisturbed if levels allow and if the sub-base is competent to support the loads envisaged. Otherwise no excavation below the underside of the existing sub-base shall take place. Any such excavation in the existing sub-base shall be by hand tools or hand-held power tools only. The new wearing course shall be laid.

LATE CONSTRUCTION and LANDSCAPING PHASE

Method 10: LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS

This method shall apply after completion of main build only. Any required operations to restore the garden area 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. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. Weed treatment if required shall be via BASIS qualified operatives. Surface debris shall be removed by hand to barrow and disposed of off-site. No wheeled or tracked plant shall be used: hand-held power tools may be used. (Outside root protection areas, mechanical cultivation shall be permitted.) The finishing soil horizon where additional planting medium is required shall be composed of biochar, see: <https://www.soilfixer.co.uk/biochar-article>

mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix 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. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally. Earthworm Inoculation Units, see: <https://www.wormsdirectuk.co.uk/product/worm-colonies-lawn-areas/>

shall be placed 150mm below ground level at 5m intervals in all soil build-up areas.

(All design subject to engineering approval, but used on other sites and known to be practicable and reliable).

Name [print]:

For construction company:

Date:

Signature.....

S844-J2-IA-1

End of main body of report – plans appended.

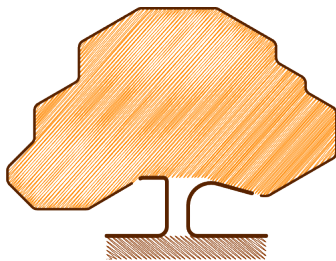
Dated: 15th July 2022

Signature (for John Cromar's Arboricultural Co. Ltd.)

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

John Cromar

Dip. Arb. (RFS), FArborA



JOHN CROMAR'S
ARBORICULTURAL
COMPANY LTD

www.treescan.co.uk
admin@treescan.co.uk

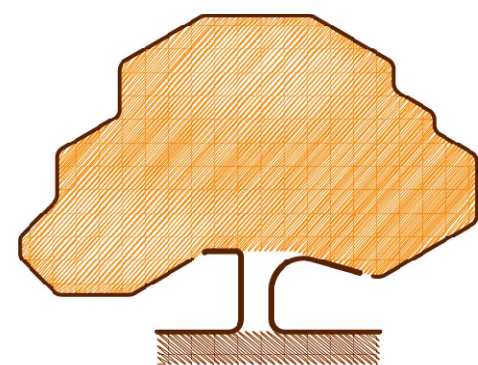
01582 808020
07860453072

10 Plans

N.b. The scale of the plans is dependent on the paper size on which any hard copy is produced.

S844-J2-P1 v1

S844-J2-P2 v1



JOHN CROMAR'S
ARBORICULTURAL
COMPANY
LIMITED

THE OLD SCHOOL,
TITLEY, KINGTON,
HR5 3RN.
*at Wheatley, Oxford
& Harpenden, Herts.*

TEL 01582 808020
FAX 01544 231006
MOB 07860 453072
admin@treescan.co.uk
www.treescan.co.uk



KEY TO COLOURS /
LINETYPES USED IN
RELATION TO TREES

GREEN - High Value (A)

BLUE - Moderate Value (B)

BLACK - Low Value (C)

RED - Very short life

expectancy (U)

MULTICOLOURED

SHAPES (orange, magenta,

red, brown): Root

Protection Areas

**Spread and trunk colours
correspond directly to
those used in British
Standard 5837:2012,
Table 2.**



TOOTHED LINE: Tree spread line

DRG. NAME
**TREE VALUE
ASSESSMENT
(AS PER BS
5837:2012) &
ROOT
PROTECTION
AREAS**

NOTES

Do not use for setting out purposes.
All dimensions to be checked on site.

Any scale referenced below applies **ONLY** when plan
printed at ISO A1 size.

The original of this drawing was produced in colour - a
monochrome copy should not be relied upon.

TEXT

FOR FULL DETAILS OF TREE VALUE
PLEASE SEE REPORT

BASED ON

NIGEL PAVEY SURVEYS DRG. REF.:
1127-S01 SUPPLIED

SITE ADDRESS

Flat 4, Oakhill House, Oakhill Park,
London, NW3 7LP

DRG. REF.

S844-J2-P1

SCALE & SIZE

1:100 @ A1

0

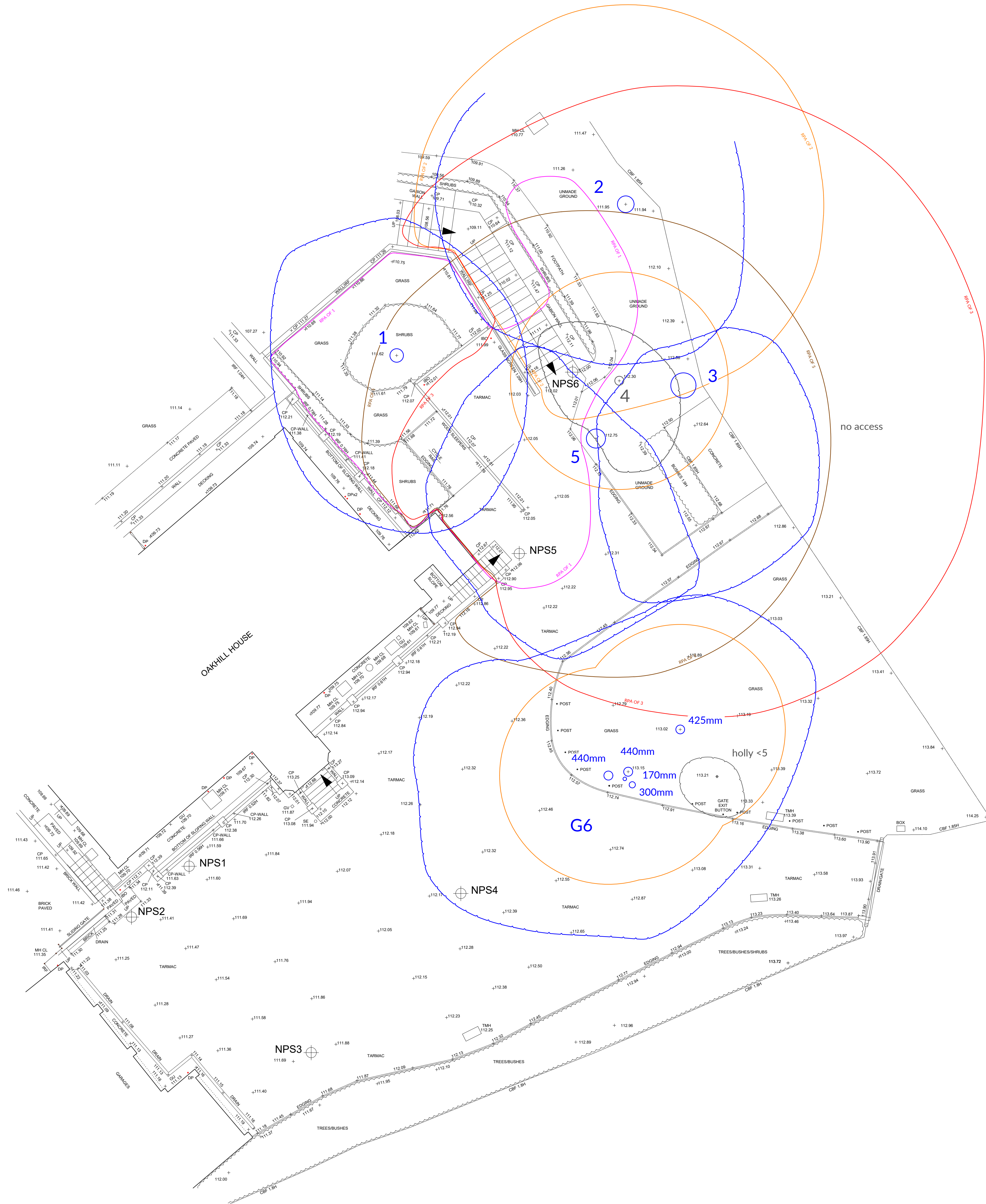
REV. NO.

v1

DATE

14-Jul-22

5



The methods below typically each have a unique colour code and hatch or other reference to the plan, for example, **pink** lines indicate where fences to protect trees should be positioned.

PREPARATION / DEMOLITION

Method 1: **SCHEDULE OF TREE WORK**

Tree work shall be in accordance with the schedule within report S844-J2-1A-1 and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread line(s) marked on plan.

Method 2: **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 6.2.2, figure 3; that is, pinned to the substrate with re-bar.

Where required to infill odd sections, tree protection fencing may be varied to >1.8m high hoarding of >1.1mm thick manufactured board and timber uprights >50mm x 100mm, no part of any of which is to be attached to any tree.

No fires shall be made on any part of the site, or within 20m of any tree to be retained. No storage of materials shall be made within the protective fences. No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

Method 3: **GROUND SURFACE HANDLING AND PROTECTION**

This method shall apply in the zones 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 'Ekotex' shall be laid; 100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, a 2D geotextile membrane, such as 'Ekotex' shall be laid, and in sequence; 100mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards.

OR

To handle loads exceeding 2 tonnes the finished tarmac car-parking, etc., surfaces shall be covered with TuffTrak[®] Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Any scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

Method 4: **WELFARE FACILITY**

This method shall apply in the **red cross** zone. No reduction whatever in existing ground levels shall take place. Timber bearers such as modern or re-purposed railway sleepers shall be laid directly on the ground surface. Alternatively the floor and superstructure supporting frame shall be supported by micro-piles such as StopDigging proprietary or similar micro-piles inserted with hand tools only. Trial pits to determine micro-pile locations shall be dug with hand tools only. N.B. The precise location of piles is flexible. 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. No connection to services of any kind shall be made below ground level: all services in and out shall be above ground level. Below the facility leaky pipe irrigation shall be installed, to operate for approx. 2 hrs. per day, at end of afternoon, or during the hours of darkness, between April and September, or a proprietary garden irrigation system on a timing device shall be used.

Method 5: **SUSPENDED TEMPORARY DECKING - STORAGE OF MATERIALS**

This method shall apply in the zone of **green grid**. Suspended decking shall be erected over the area indicated on plan, supported by 100mm x 100mm timber pegs or short driven scaffold tube or timber baulks supporting a timber framework. The surface shall be TuffTrak[®] Euromat or AlturaMat ground guards or similar appropriate product. The sections shall be fixed together with manufacturers' approved fixings. Alternatively, manufactured board covered by heavy-duty impermeable membrane, with falls ensuring water is drained to areas outside any RPA, and with a non-slip finish shall be laid. Below the area leaky pipe irrigation shall be installed, to operate for approx. 2 hrs. per day, at end of afternoon, or during the hours of darkness, between April and September, or a proprietary garden irrigation system on a timing device shall be used.

Method 6: **DEMOLITION**

This method shall apply generally. Demolition, which shall be by 'top down, sides in' method, shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed for disposal off site. None shall be spread in root protection areas (bounded by orange, magenta, red, brown lines).

CONSTRUCTION

Method 7: **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 (bounded by orange, magenta, red, brown lines).

1) The trench shall be opened with an air-spade to required depth. 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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.

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Method 8: **PILE LOCATION DETERMINATION and FULLY SUSPENDED SLAB**

This method shall apply within the **magenta honeycomb** zone on plan. No general reduction whatever of existing ground levels shall take place. The trial pits to determine pile locations shall be dug with hand tools only.

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This method shall apply in the **blue** hatch zone on plan that covers the finished tarmac car-parking, etc., surfaces. No 'scraping up' with a mechanical excavator shall be carried out. The existing hard surface shall be lifted by hand tools or hand-held power tools only. The underlying sub-base shall be left undisturbed if levels allow and if the sub-base is competent to support the loads envisaged. Otherwise no excavation below the underside of the existing sub-base shall take place. Any such excavation in the existing sub-base shall be by hand tools or hand-held power tools only. The new wearing course shall be laid.

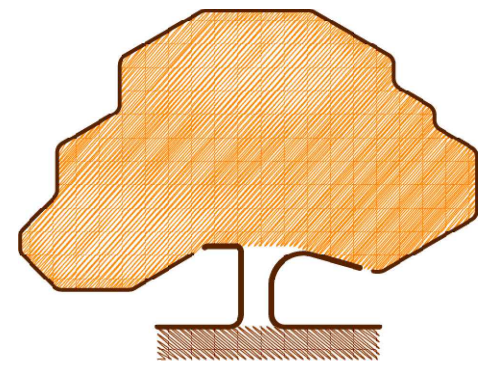
LATE CONSTRUCTION AND LANDSCAPING PHASE

Method 10: **LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS**

This method shall apply after completion of main build only. Any required operations to restore the garden area 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. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. Weed treatment if required shall be via BASIS qualified operatives. Surface debris shall be removed by hand to barrow and disposed of off-site. No wheeled or tracked plant shall be used: hand-held power tools may be used. (Outside root protection areas, mechanical cultivation shall be permitted.) The finishing soil horizon where additional planting medium is required shall be composed of biochar, see: <https://www.soilfixer.co.uk/biochar-article>

mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix 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. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally. Earthworm Inoculation Units, see: <https://www.wormdirectuk.co.uk/product/worm-colonies-lawn-areas/>

shall be placed 150mm below ground level at 5m intervals in all soil build-up areas.



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THE OLD SCHOOL,
TITLEY, KINGTON,
HR5 3RN.

at Wheatley, Oxford
& Harpenden, Herts.

TEL 01582 808020
FAX 01544 231006
MOB 07860 453072
admin@treescan.co.uk
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**KEY TO COLOURS /
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RELATION TO TREES**

GREEN - High Value (A)

BLUE - Moderate Value (B)

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RED - Very short life

expectancy (U)

MULTICOLOURED

SHAPES (orange, magenta,
red, brown): Root
Protection Areas

**Spread and trunk colours
correspond directly to
those used in British
Standard 5837:2012,
Table 2.**

**For planting key please
see report.**

DRG. NAME TREE RETENTION & TREE PROTECTION MEASURES

NOTES

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monochrome copy should not be relied upon.

TEXT

FOR FULL METHOD DETAILS
PLEASE SEE REPORT

BASED ON
BROD WIGHT ARCHITECTS DRG.
REF.: 1127-AP01 SUPPLIED

SITE ADDRESS
Flat 4, Oakhill House, Oakhill Park,
London, NW3 7LP

DRG. REF.
S844-J2-P2
SCALE & SIZE
1:100 @ A1
0

REV. NO.
v1
DATE
15-Jul-22
5