

ACS

CONSULTING

URBAN & RURAL

TREE MANAGEMENT

27th January 2012

Ref:ha/letrpt1/8antrimgrv

Your Ref:

Mr J Biek
Bchitecture
11a Beresford Road
London
N2 8AT

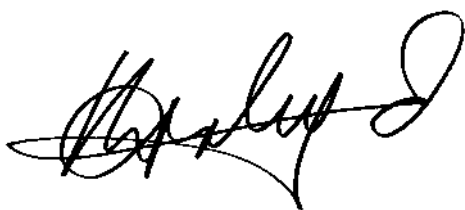
Dear Mr Biek

Tree Protection and Construction at: 8 Antrim Grove, London, NW3

Further to my site visit of 2012, please find attached my arboricultural method statement as requested to assist with the planning application.

I hope that this is clear and helpful but if I can be of any further assistance, please do not hesitate to contact me.

Yours sincerely



Hal Appleyard
Dip. Arb. (RFS), F.Arbor.A, MICFor.
Arboricultural Association Registered Consultant



 Institute of
Chartered Foresters
Registered Consultant

enc.

Arboricultural Assessment and Method Statement

Site: 8 Antrim Grove, Belsize Park, NW3

Date: 27th January 2012

Prepared by: Hal Appleyard Dip. Arb. (RFS), F.Arbor.A, MICFor.

Ref: ha/ms1/8antrimgrv

Appendices:

1. Tree Survey Schedule (BS5837:2005)
 2. Tree Protection Plan TPP1_AG
 3. Recommended example of tree protection fencing
 4. Example of site monitoring record
 5. Methods and Example of manual dig close to trees
-

1.0 Introduction and Scope

- 1.1 A planning application for the construction of an extended basement is to be submitted for consideration by the Local Planning Authority (LPA).
- 1.2 The rear subterranean extension falls within the proximity of a mature tree in growing in neighbouring land. Consequently, an assessment of the implications upon trees is required to accompany the planning application.
- 1.3 I have been appointed by as a competent and qualified arboricultural consultant to assess the trees and scheme, provide this report and to supervise any works that may have the potential to affect any neighbouring trees.
- 1.4 I have assessed the trees, (from within the grounds of No 8 only), in accordance with the guidance set out in BS 5837:2005 'Trees in relation to construction-Recommendations' (the BS) and an extract from that guidance is appended herewith.

2.0 The Site and Trees

- 2.1 The site comprises a detached, three storey town house, set in a residential street of Belsize Park. The front garden does not contain any trees but a low privet hedge borders the front boundary to the street. The rear boundaries abut similar

residential gardens on all three sides. The garden to the north, contains a mature Sycamore tree and a much smaller False Acacia. Small shrubs and saplings exist in the garden of the subject property but are of little consequence to this report.

- 2.2 I have provided the BS details of the tree in the tree survey schedule at **Appendix 1** and its corresponding position (approximate) is shown on the tree protection plan at included at **Appendix 2**.



Sycamore T1 November 2011



January 2012

- 2.3 The primary tree in need of reasonable consideration in terms of subterranean excavations is the Sycamore t1. T2, the False Acacia is sufficiently remote from the proposal not to be affected.
- 2.3 Having undertaken some trial pit root assessment work, with the use of the air spade on 17th November 2011, the design has been influenced to reasonably account for encroaching roots. Roots from the Sycamore have extended prolifically into the rear garden of No 8 where there is no physical, subterranean boundary between the tree and the land e.g. the foundations of a brick wall for example.

- 2.4 Given that roots have grown beyond one boundary, it is logical to expect that roots have grown, unrestricted beyond all other boundaries. Consequently, the tree can be considered to be 'open grown'. The BS makes provision at para. 5.4.2 for an off-setting of the root protection area (RPA) from the centre of the tree in one direction, to an amount of up to 20%, where the tree is normally vigorous.

Trial pit for root assessment. Approximate tree position arrowed.



- 2.5 The Sycamore tree, although damaged by storms just recently, is vigorously growing and with reference to the literature¹, able to tolerate some root loss. Where a tree has produced a dense mass of roots, as in this case, as a proportion to the whole some root pruning will have a lesser effect upon the tree than a tree with fewer roots.

1. Matheny, N., Clark, J.R., 1998 'Trees and Development' ISA

Proposed Construction

- 2.6 The proposed basement, which extends into the current rear garden, will require piles to be driven/formed initially to retain soil, which is subsequently removed. The soil along the northern route of the piling, is likely to encounter roots from the Sycamore. I recommend that the initial 800mm depth of soil be manually excavated to enable any exposed roots to be pruned back professionally and properly to reduce the potential for damage. At Appendix 5 is an example of a manual dig exercise prior to piling.

- 2.7 I have inspected the trees and the proposals and I have consulted with the architect in respect of foundation design and the impact this may have upon the trees. Consequently, I consider that these proposals have taken full account of the trees and their safe keeping. I am confident that they will be preserved for the future with the implementation of the protection measures that I have set out below, coupled with the designs prepared by the architect.

Recommended Tree Pruning Works

Table 1 – Recommended Tree Works

Tree Works (Spec.)	Tree Nos	Visual Landscape Impact of Works*	Available Replacement Planting(Y/N)	Comments
Root assessment and pruning as required (07)	T1	None	-	Minimal pruning to be carried out under competent supervision
Total			Approx 2	Refer to landscape plans

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – None (no change or beneficial impact) Negligible or indiscernible difference to treed landscape; Low – Noticeable but mitigated by retention of other landscape trees and features; Medium – Obvious but temporary alteration to the treed landscape; High – Obvious and permanent alteration to the landscape.

Visual receptors include the public or community at large, residents, visitors or other groups of viewers together with the visual amenity of potentially affected people.

Specifications for recommended tree works:

General

All work is to conform to BS 3998:2010 'Tree work – Recommendations' and with current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover, equipment and PPE. All works and processes are to comply with all relevant Wildlife, Environmental, Conservation and Health and Safety legislation.

07. Root pruning is to be carried out or supervised by a competent person (arboricultural contractor). Only sharp and specific pruning tools will be used for the root pruning exercise. No roots are to be pruned if it is considered that their loss (or shortening) will adversely impact upon tree condition or anchorage, immediately or in the future. Any exposed roots will be covered with a material to prevent desiccation. All exposed cut root surfaces will be made as small as possible. If possible roots will be pruned back to side shoot.

3.0 Recommended Construction Precautions (trees)

- 3.1 In order to afford protection from general construction processes associated with the building of the lower ground/basement, it will be necessary to erect a robust tree protection fence (normally wire mesh panels) in the position indicated on the Tree Protection Plan at **Appendix 2** (TPP1_AG). A recommended example of the type BS grade tree protection fencing is included at **Appendix 3**. The fencing is to be erected before any materials or equipment are delivered to site.
- 3.2 Following erection of the tree protection fencing, I recommend installing some ground protection (refer to TPP1_AG) to ensure that roots under the surface are not damaged by compaction during regular passing by operatives and light machinery. I have included recommended examples of ground protection at **Appendix 3** also.
- 3.3 The top 800mm of soil (where roots are mostly found), for the route of the northern piling line (see Appendix 2), is to be manually excavated and any roots will be pruned back to the soil face with sharp cutting tools only. The exposed soil root face of the trench (north side) is to be covered in a damp hessian material to prevent desiccation of roots.
- 3.4 In order to ensure that the tree protection measures are implemented effectively, a site monitoring exercise will be undertaken to confirm:
- i) The efficacy and accuracy of the fencing and ground protection
 - ii) The root pruning exercise (where necessary)

An example of a site record (tree protection) is provided at **Appendix 4**. In this case, the form will be used as confirmation that all practical precautions have been undertaken in accordance with this method statement.

- 3.5 A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

4.0 General site care (trees)

- 4.1 No fires will be lit on site.
- 4.2 No access will be permitted to within the fenced or otherwise protected areas (unless for site accommodation or Authorised agreement) at any stage during construction.
- 4.3 No materials, equipment or debris will be stored within the fenced areas unless agreed with the arboricultural supervisor.
- 4.4 Areas for mixing are to be located beyond RPAs of trees and contained to prevent leaching into the soil.
- 4.4 A copy of this report and the Tree Protection Plan is to remain on site at all times.

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Hal Appleyard *Dip. Arb. (RFS), F.Arbor.A, MICFor.*
Chartered Arboriculturist & Arb. Assoc. Registered Consultant

27th January 2012

APPENDIX 1

Tree Survey Schedule

Surveyor: H. Appleyard

Ref: ts1/8antrimgrv

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
T1	Sycamore	18	5 5 6 5	4	Mature	1000e	10	10.0	Normal	Good	Medium	B	1	20-40	Off-site tree Twin stem Union at stem divide appears robust; self set tree; spreading canopy. Jan 2012 tree damaged in storms, which has altered some dimensions and reduced
T2	False Acacia	9	1 3 3 2	2.5	Middle Aged	220e	12	2.6	Normal	Fair	Low	B	1	20-40	Ivy covered trunk and branches Off-site tree

Notes:

- Height describes the approximate height of the tree measured in meters from ground level.
- The Crown Spread refers to the crown radius in meters from the stem center and is shown above on each of the four compass points (i.e. N, S, E, W).
- Ground Clearance is the height in meters of crown clearance above adjacent ground level.
- Stem Diameter is the diameter of the stem measured in millimeters at 1.5m from ground level for Single Stemmed (SS) trees or at ground level for Multi Stemmed (MS) trees. Stem Diameter may be estimated (est) where access is restricted or an average (ave) taken for groups of trees.
- Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the tree's protection radius and area.

- Protection Radius is a radial distance measured from the trunk centre.
- Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
- Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present.
- Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
- B.S. Cat refers to (British Standard 5837:2005 Table 1) and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'R' - Remove.
- Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservational, Historic and Commemorative.
- Useful Life is the tree's estimated remaining contribution in years.

Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria — Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

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APPENDIX 2

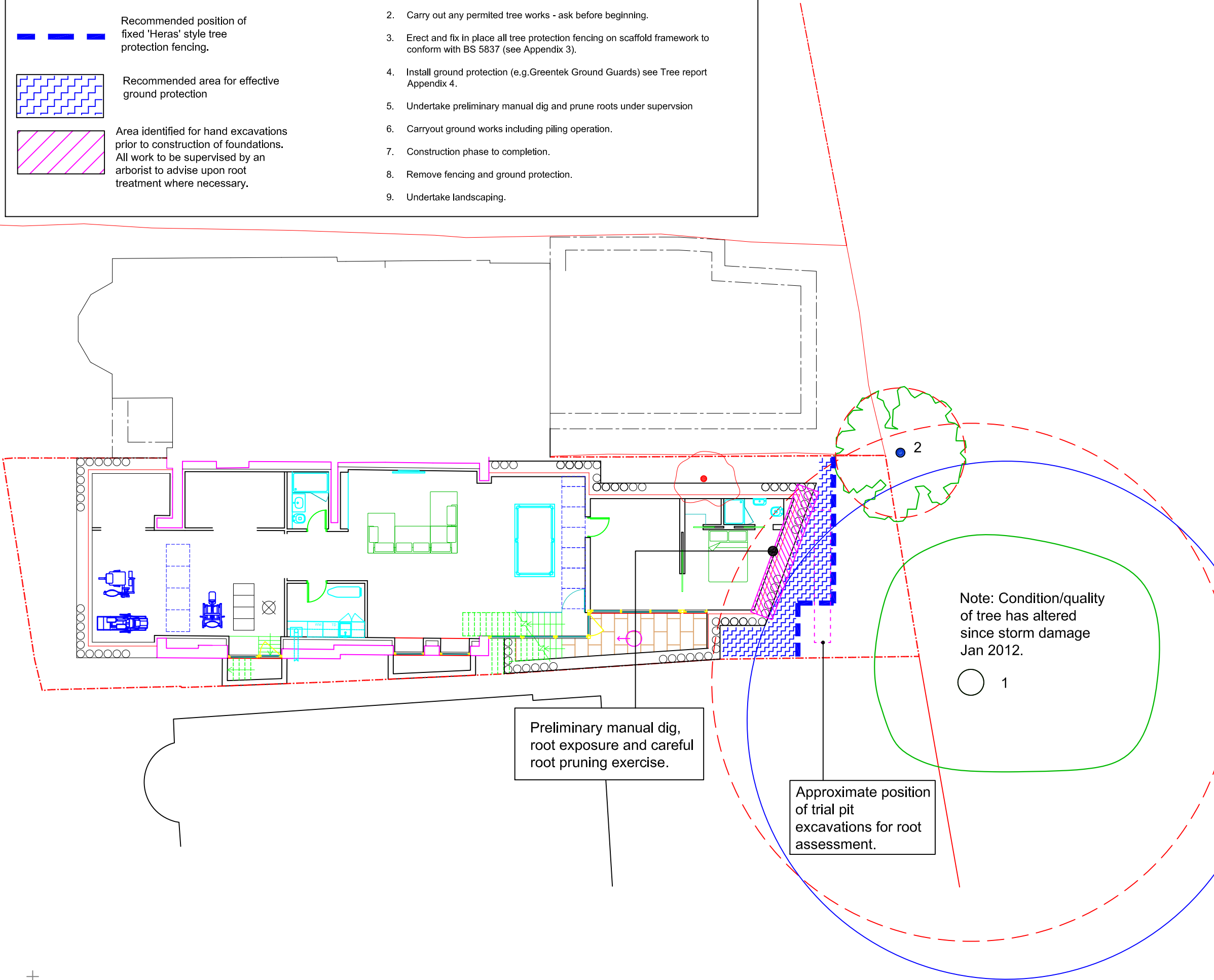
Tree Protection Methods to be adopted on site.

1. Undertake pre-commencement site meeting to agree tree protection methods and timings.
2. Carry out any permitted tree works - ask before beginning.
3. Erect and fix in place all tree protection fencing on scaffold framework to conform with BS 5837 (see Appendix 3).
4. Install ground protection (e.g.Greenetek Ground Guards) see Tree report Appendix 4.
5. Undertake preliminary manual dig and prune roots under supervision
6. Carryout ground works including piling operation.
7. Construction phase to completion.
8. Remove fencing and ground protection.
9. Undertake landscaping.

Recommended position of fixed 'Heras' style tree protection fencing.

Recommended area for effective ground protection

Area identified for hand excavations prior to construction of foundations. All work to be supervised by an arborist to advise upon root treatment where necessary.



TREE MANAGEMENT CONSULTANTS

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BS Root Protection Area, (RPA) shown uniform here but site features such as roadways, kerb and foundations, may modify root patterns and therefore the RPA shape

The BS rooting areas are to remain free from construction works which has the potential to damage or remove roots to an extent which may affect the condition of the tree.

A grade trees

B grade trees

C grade trees (clear)

R grade trees

The BS rooting areas can be offset by 20% provided rooting capability is available on other sides of the tree and the whole rooting area is is not reduced.

Tree/sapling to be removed

Project:
8 Antrim Grove
London
NW3

Drwg Title:
Tree Protection Plan

1:150@A.3
Date: Jan. 2012
Drawn By:HA

Drawing No: Rev:

TPP1_AG

APPENDIX 3

Tree Protection Fencing

Specifications (specifically identified by outline box)

2.4m Hoarding

3.0m 100 X 100mm square wooden posts

3 X 38 X 87mm wooden rails affixed to posts

2.4m X 1200 outside grade ply panels (12mm) affixed to rails.

50 X 100mm angled supporting struts affixed internally (quantity as required).

(Supporting posts fixed into position using concrete. All post holes to be hand excavated. Post holes to be no larger than 300 X 300mm.)

Where it is not possible to insert post holes into the ground (e.g. existing hard surfacing) alternative support for posts, such as concrete-filled drums, may be used.

Heras Fencing

Heras fencing describes the 2.4m galvanised steel mesh panelled fencing normally supplied with pre-cast concrete bases. **Bases are to be replaced with a fixed frame to which panels are clamped/ firmly fixed.** For extra stability, scaffold poles/4x4 wooden posts are to be firmed into the ground as supporting posts and supporting struts are to be attached at a 45 degree angle on the 'tree-side' of the fencing and fixed into the ground. Supporting posts will be braced at the top and base for added support.

Example 1.

Heras Fencing with supporting by a scaffold framework fixed (tree side) for extra support.



Example 2.

Hoarding-style fencing with robust wooden posts with supports to ensure minimal movement.



APPENDIX 4

Arboricultural Site Supervision

Site: 1 Hyde Park, London
Inspected By: H .Appleyard
Client: RPC
Site Agent: Shaun Clark

Date of Inspection: 15/02/2007
Time of Inspection: 3:30pm

Tree Protective Fencing

Tree protection in correct location

Comments/Action

No action at this time

Agreed Construction Exclusion Zone

No debris within construction exclusion zone

Comments/Action

No action at this time

Amendments to Documentation Required

No amendments required

Comments/Action

Building works outside scope of Method Statement

Remedial Works

General Comments

Tree protection and on-site supervision effective and understood.



Effective fencing in position



Fencing with signs

APPENDIX 5

**ACS
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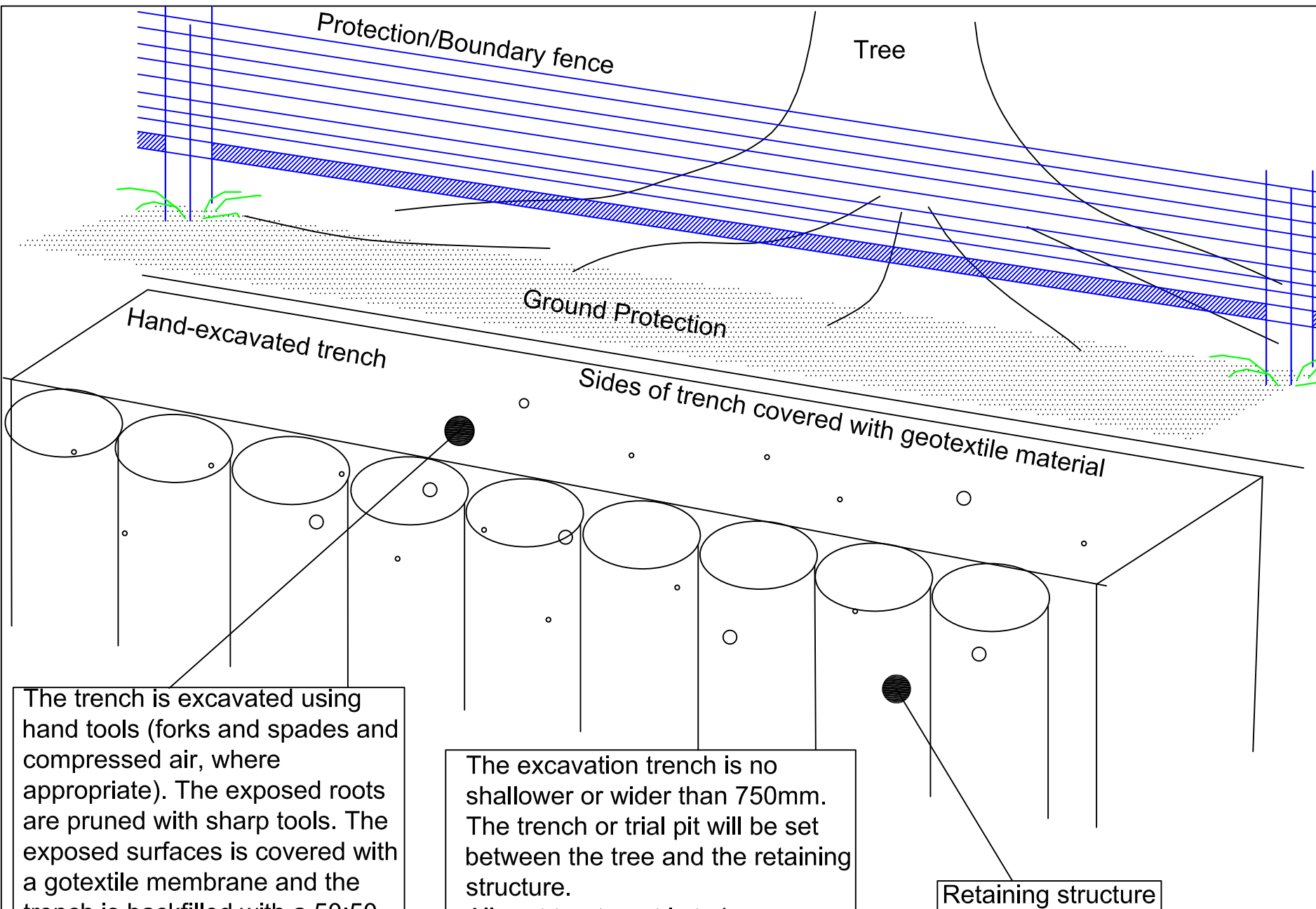
Title:
Example of
hand-dug trial trench
and root treatment

Exposed roots of a
diameter in excess of
25mm will be pruned using
sharp cutting tools to keep
the exposed surface to a
minimum.

Date: Oct 07

Ref: sk1/ha/

Note: Sketch Plan Only - Not to
Scale
Not all site features shown



The trench is excavated using hand tools (forks and spades and compressed air, where appropriate). The exposed roots are pruned with sharp tools. The exposed surfaces is covered with a gotextile membrane and the trench is backfilled with a 50:50 mix of sharp sand and graded loam to promote new root growth.

The excavation trench is no shallower or wider than 750mm. The trench or trial pit will be set between the tree and the retaining structure. All root treatment is to be supervised by a competent professional.

Retaining structure

Hand Digging In the Vicinity of Trees

Method Statement

1.0 Introduction

- 1.1 Within and adjacent to areas of construction, trees valued as important landscape assets may exist. It is possible such trees are protected by legislation in the form of a Tree Preservation Order, conservation area or by planning conditions. In either case, disregard of the tree's well being by causing damage to the roots, trunk or branches may be an offence. Consent from the Local Planning Authority may be required to undertake works that may have an impact on the tree prior to commencement.
- 1.2 Whilst the trunk and branches of a tree can be seen and therefore more easily avoided, tree roots are concealed beneath the ground. Their hidden nature can lead to inadvertent damage from construction processes. Dependant upon the extent of any root damage, the whole tree can be adversely affected. It is for this reason that it is necessary to ensure adequate precautions are adopted when considering construction in the vicinity of trees.
- 1.3 Hand digging rather than excavation by mechanical means has proved to be an effective way of limiting the effects of construction on nearby trees. It is often considered impractical, time consuming and costly to excavate by hand when machinery exists specifically for the purpose of digging. However, avoidance of unsustainable damage being caused to important trees through hand digging may far out weigh subsequent costs associated with legal penalties and loss of amenity.
- 1.4 Below are detailed the basic principles to acknowledge in respect of tree roots and the practical steps that can be taken to effectively avoid causing unsustainable damage to trees.
- 1.5 It is assumed that all operations are commenced only AFTER having undertaken and recorded appropriate risk assessments in line with current and relevant Health & Safety legislation, common industry practice and guidance.

2.0 Tree/Root Damage – How it can occur

- 2.1 The majority of tree roots exist in the upper **600mm to 1000mm** of soil. Excavations of the soil in the vicinity of trees, to this depth, can be harmful to tree roots and consequently the tree.
- 2.2.1 Tree root systems comprise two main root types, those that **anchor** the tree in the ground and those that **supply** the tree with water and elements. Roots that support the tree are woody and those that are involved with the **conduction** of water and nutrients are non-woody or fibrous. Both types of roots can be damaged directly by severing or crushing. Fibrous roots can die from asphyxiation by **soil compaction** and/or soil contamination. Trees differ in their tolerance of root loss or disturbance, according to their species and condition or both.
- 2.3 The larger the root damaged, the greater the impact on the tree.

3.0 Hand Digging in the Vicinity of Trees – The Process

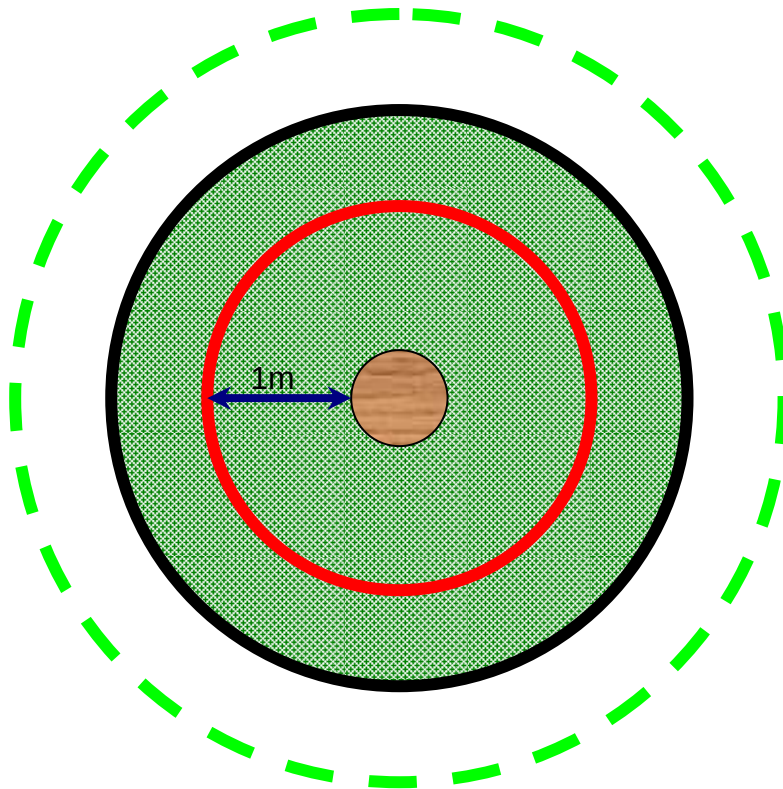
- 3.1 First it is necessary to consider all available options to construct beyond the likely range of influence on the tree's condition – normally beyond 1m from the tree's trunk and within an area below the tree's canopy or by referring to Table 1 of BS 5837:2005 'Trees in Relation to Construction. Recommendations'. This area is called the Precautionary Zone or Root Protection Area. **When it is established that no options are available other than to construct within this zone, hand digging will be needed.** When considering hand digging, an appointed specialist supervisor/consultant will be able to advise during construction and must be on site at the commencement of works.
- 3.2 Before beginning to dig, mark out the tree's precautionary area with ground marker paint, clearly on the ground. This will identify the area within which hand digging must take place. **For safety and before beginning to dig, ensure there are no underground services or objects that may cause injury if damaged.** Any existing protection fencing is to be located to the nearest position of construction and fixed in place, between the tree and area of construction. It will be clearly visible to operators thereafter where hand digging will need to be undertaken. The use of mechanical digging equipment to remove the top surface layer (50-100mm) is to be avoided and hand tools are required for this exercise too.
- 3.3 When hand digging, using typical hand tools, carefully work around roots, retaining as many as possible. Using a brush or compressed air will expose roots cleanly before deciding whether it will be necessary to prune. Care must be taken not to damage roots including the roots' bark.
- 3.4 Retain all roots with a diameter greater than 25mm. Where such roots must be removed, after consulting a trained arboriculturalist (e.g. Local Authority Tree Officer or the appointed Arboricultural Consultant), these roots must be pruned with sharp cutting tools

- such as a handsaw, secateurs or pruners. The cut must leave the smallest wound possible and the root must be left as long as practicably possible. Roots in excess of 50mm diameter are to be retained and protected by surrounding the root with uncompacted sharp sand, void-formers or other compressible materials.
- 3.5 Where roots do not exist, e.g. beyond the depth of the rooting area, mechanical excavation should not be considered without specialist supervision.
 - 3.6 All spoil is to be deposited beyond the precautionary zone. Soil build-up can cause roots to die.
 - 3.7 As soon as practicable, exposed roots are to be covered with loose backfill material such as soil/sand mix or a hessian-type material to offer immediate protection from drying winds and desiccation. When excavating for the introduction of posts, pads or piles, the sides of the pits should be lined with a geotextile material to prevent the potential for lime scorching of small diameter roots.
 - 3.8 Where it is impossible to avoid completing the construction in one day for example, any exposed roots or their cut ends are to be covered with sacking material over night to prevent drying out and to add protection. This is particularly important in winter months, where frost can cause further damage to roots.
 - 3.9 Upon completion of the hand digging, where appropriate protection fences are to be re-located and fixed in their original position.

Attached is an extract from the National Joint Utilities Group publication V4 2007, 'Guidelines for the planning installation and maintenance of utility services in proximity to trees'. In addition Table 2 from BS 5837:2005 'Trees in Relation to Construction. Recommendations' is provided.

Before considering hand digging and determining precautionary zones or root protection areas, specialist arboricultural advice should be sought.

APPENDIX 1

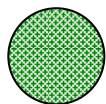


TREE PROTECTION ZONE

Key to Diagram



Trunk of Tree



Spread of canopy or branches



PROHIBITED ZONE – 1m from trunk. Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.



PRECAUTIONARY ZONE – beneath canopy or branch spread. Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.



PERMITTED ZONE – outside of precautionary zone. Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 1

DAMAGE TO TREES

Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil and often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. Most street tree roots grow under the footway but may also extend under the carriageway. If roots are damaged the tree may suffer irreversible harm and eventually die.

PROTECTING ROOTS - DO'S and DON'TS

There are three designated zones around a tree each of which has its own criteria for working practices.

THE PROHIBITED ZONE

Don't excavate within this zone.

Don't use any form of mechanical plant within this zone

Don't store materials, plant or equipment within this zone.

Don't move plant or vehicles within this zone.

Don't lean materials against, or chain plant to, the trunk.

Do contact the local authority tree officer or owner of the tree if excavation within this zone is unavoidable.

Do protect any exposed roots uncovered within this zone with dry sacking.

Do backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PRECAUTIONARY ZONE

Don't excavate with machinery. Where excavation is unavoidable within this zone excavate only by hand or use trenchless techniques.

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Don't repeatedly move / use heavy mechanical plant except on hard standing.

Don't store spoil or building material, including chemicals and fuels, within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non highway sites backfill only with excavated soil.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PERMITTED ZONE

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Do use caution if it is absolutely necessary to operate mechanical plant within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.