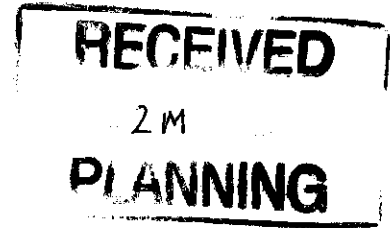


PanEuroSys Ltd
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6/1987/FUL



2 March 2007

Ms V Crosby
Planning Officer
Environmental Directorate
London Borough of Richmond upon Thames
Civic Centre
44 York Street, TW1 3BZ

Dear Ms Crosby

Land Adjacent to 373 Sandycombe Road, Kew, Surrey TW9 3PR
Proposed development of three bedroom detached house with parking space

Arboricultural Report: Tree Method Statement

Please find enclosed Arboricultural Report from ACS Consulting, a Tree Appraisal & Protection Method Statement in accordance with BS 5837:2005.

I have included a second copy for your Tree Officer, Peter Holloway, who was most helpful in pointing me towards the www.treebiz.co.uk website, where I found ACS Consulting.

Mr Appleyard's report appears to me to be very thorough, and I intend to use his services further during the exploratory trenching work, subject of course to gaining planning approval.

If I can provide any further details, please do not hesitate to contact me. Perhaps you would advise me as soon as you have scheduled the application for consideration at a Committee Meeting. Please forward their Decision directly to me at the address above.


Yours sincerely

A handwritten signature in black ink, appearing to read "Ron Crick".

Ron Crick
Managing Director

Directors: Ron Crick B.Sc (Hons)
Annie Holdsworth B.Ed

Registered in England No: 2751786

-6/1087/ 

**ARBORICULTURAL
REPORT**

for :
373 Sandycombe Road
Kew Village

Produced for:

PanEuroSys Ltd
(Mr R Crick)

Prepared by:

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

Date: 23rd February 2007

Reference:

ha/ms1/373sandycomberd

ACS Consulting (London)
Justin Plaza 3
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CR4 4BE
T: 020 8687 1214

RECEIVED
8 2 MAR 2007
PLANNING

ACS Consulting (London)
Tree Management Consultants
T: 020 8687 1214

ACS

CONSULTING



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<u>Appendix 1 Tree Survey Schedule</u>	
<u>Appendix 2 Tree Protection Plan and Protection</u>	
<u>Appendix 3 Hand Digging in the vicinity of trees</u>	
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Tree Appraisal & Protection Method Statement

Trees at 373 Sandycombe Road, Kew Village

Introduction and Scope

This report has been commissioned by PanEuroSys Ltd to; i) assess the trees in accordance with BS 5837:2005 'Trees in relation to construction- Recommendations' (The BS); ii) detail the arboricultural consequences of the proposed project; iii) set out the tree protection measures considered appropriate for the scale and type of construction; iv) develop a tree protection strategy for the duration of the construction including any demolition works.

Reference to 'the proposed scheme' below will mean either the approved scheme for which planning consent has been granted or the scheme under consideration by the Local Planning Authority (LPA).

The trees were inspected on 25th January 2007 and a total of 2 tree records are provided.

This Method Statement sets out the protection measures that will be adopted to ensure effective tree preservation. The basic principles are that; the established fenced and ground protected areas are exclusion zones for the duration of the construction and; excavations within the RPA will be subject to professional assessment*.

1.0 Tree Appraisal

1.1 The tree details are presented at **Appendix 1**. Other observations are recorded here. The implications of the proposed scheme are detailed in the table below:

Tree Works	Tree No	Visual Landscape Impact	Replacement Planting (Y/N)	Comments
Prune back to boundary	1	None	N	Slight overhang of pollard regrowth
Prune roots (as required)	1	None	N	Hand excavated trench – prune roots <25mm Ø.
Total		None	-	

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – Negligible (None.) Indiscernible difference to

landscape; Low – Noticeable but mitigated by other landscape features; Medium – Obvious but temporary alteration to the landscape; High – Obvious and permanent alteration to the landscape

- 1.2 All work is to conform to BS 3998:1989 ‘Tree Work’ (with amendments) and to current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who has the appropriate experience and insurance cover. Commencement of all or some of the proposed works may be subject to written authorisation from the Local Planning Authority (LPA) should planning consent be obtained. We strongly advise that authorisation for any tree works is obtained from the LPA prior to commencement.**
- 1.3 The tree pruning outlined above will be undertaken only to enable the safe use of scaffolding during construction. It is anticipated that the trees will continue to be regularly pollarded to retain an acceptable separation between the tree canopy and the roof line of the proposal.
- 1.4 It is to be noted that the orientation of the proposal is south of T1. Any shade cast by the tree’s canopy will be predominantly away from the building to the north. Impacts regarding this matter are limited therefore.

2.0 Tree Protection

- 2.1 A tree’s BS root protection area (RPA) is based upon a radius measurement taken from the trunk centre and is included with reference to Table 1 of the BS (See **Appendix 1**). Works within the tree’s assessed RPA will be subject to guidance set out here, particularly where construction is required within this area but beyond the position of tree protection fencing or barriers. The Tree Protection Plan (TPP) indicates the position of the BS RPA.
- 2.2 The London Plane trees are growing within the pavement of High Park Road. Roots from the trees are likely to have been restricted in their growth into the site by the presence of the brick boundary wall and its foundations. However, we must assume that some roots have penetrated into the site, which will need to be treated and protected.
- 2.3 Effective tree protection will be afforded subject to following a logical sequence of events, which **will follow a pre-commencement site meeting with the LPA representatives and the site agents and any specialist supervisors:**

- S1 Hand excavate trial trench and prune roots as necessary.
- S2 Carry out remaining ground works including excavations for foundations
- S3 Carry out tree pruning as necessary.
- S4 Erect scaffolding and complete construction works
- 2.4 Retained trees would normally be offered protection by erecting suitable robust fencing. In this case however, since the trees in question are off site, located in the public pavement and separated from the site by a brick boundary wall, specific tree protection fencing will not be required nor will it be practical to erect.
- 2.5 The RPA of T1 will be marked with spray paint on the ground to clearly identify the area within which potentially root harming actions are to be avoided. This will include the use of all mechanical excavators or similar digging equipment. All works within this area (see TPP at Appendix 2), will be undertaken using hand tools only.
- 2.5 Site security fencing will be erected upon or just within the boundary wall and will remain in situ until completion. This fencing will be the hoarding style, the specification of which is included at **Appendix 2**. No struts will be included though the posts will be fixed into the ground and against the retained wall.
- 2.6 It is to be noted that currently the site is covered with a tarmac hard surfacing. It is proposed to retain the tarmac surface until the landscaping stage (following the construction phases). This will offer a protective covering to any roots, which may grow below, against storage and pedestrian traffic during construction.
- 2.7 The proposed cycle store will be of simple frame construction, which requires insignificant excavations for the maximum of two posts.
- 3.0 Underground Services & Foundations**
- 3.1 The proposed scheme can make use of existing services and there is no requirement for new excavations in the vicinity or RPA's of retained trees.
- 3.2 In the location of the proposed foundations, before other site works, a hand excavated trench will be exposed in order to clearly identify the extent of roots growing within the site. **This process will be supervised by a competent person.** Woody roots with a diameter less than 25mm will be professionally

pruned back using proper cutting implements. Roots with a diameter greater than 25mm will be retained (where expertly assessed to be necessary) and roots with a diameter in excess of 50mm will be retained. Specially prepared void-formers or 'sleeves' will be used to preserve such roots (see **Appendix 3 & 4**).

- 3.3 The foundations of the structures located within the BS RPA of tree No 1 will be constructed by adopting traditionally strip foundations, where this has been found to be acceptable by a competent person following hand excavations.

4.0 Site Supervision Arboricultural Specialist

- 4.1 A **pre-commencement** site meeting, involving representatives from the development, contractors and engineers (as appropriate), site agent and relevant LPA officers, will be undertaken to establish the principal timings and actions.

- 4.2 So as to ensure that the tree protection measures are implemented, an arboricultural specialist will be appointed to record the condition of the trees to be retained and the position and type of tree protection erected and or installed. The specialist will make a record of visits and which will be left on site for inspection.

- 4.3 Key times for site supervision include:

1. Completion of agreed/necessary tree works
2. Erection of tree protection/site security fencing
3. Excavation works and root pruning within RPA of T1
4. Landscaping

- 4.4 Site monitoring will be at regular intervals, (beyond that stated above) and at minimum three-week intervals**.

Contact List

Interested Party	Name	Company/LPA	Contact Number(s)	Comment
Site Agent	TBA			
Arb. Supervisor	E Buckton	ACS Consulting	020 8687 1214	
LPA Tree Officer	TBA	L.B. Richmond		

TBA – To Be Advised

5.0 General Site Care

- 5.1 No fires will be lit on site
- 5.2 No materials or equipment are to be stored on the road or pavement.
- 5.3 No materials, equipment or debris will be stored within the root protection areas unless agreed with the arboricultural supervisors.
- 5.4 A copy of this Method Statement and Tree Protection Plan is to remain on site at all times.

* RPA to be assessed by an arboriculturalist. BS 5837:2005 'Trees in Relation to Construction - Recommendations' paras. 5.2.4 and 11.1.1.

**Supervision of the site is subject to instructions

APPENDIX 1

TREE SURVEY SCHEDULE



SITE: 373 Sandycombe Road, Kew Village
INSPECTION DATE : 25.01.07

SURVEYOR: Hal Appleyard
REPORT REF: ha/ts1/373sandycomberd

Tree No.	English Name	Height (m) <small>SEE NOTE 1 BELOW</small>	DBH (cms) <small>SEE NOTE 2 BELOW</small>	Crown Spread (m) <small>SEE NOTE 3 BELOW</small>	Vigour <small>SEE NOTE 4 BELOW</small>	Age Range <small>SEE NOTE 5 BELOW</small>	Useful Life <small>SEE NOTE 6 BELOW</small>	BS Cat. <small>SEE NOTE 7 BELOW</small>	Root Prot. Rad. <small>SEE NOTE 8 BELOW</small>	Comments
1	London Plane	13	53	3	N	M	H	B	6.4m	Pollarded street tree; located within paved pavement; separated from site by brick boundary wall; minor over hang from new re-growth; regularly pollarded trees (Council)
2	London Plane	13	53	3	N	M	H	B	6.4m	Pollarded street tree; located within paved pavement; separated from site by brick boundary wall; minor over hang from new re-growth; regularly pollarded trees (Council)

*means estimated.

Notes:

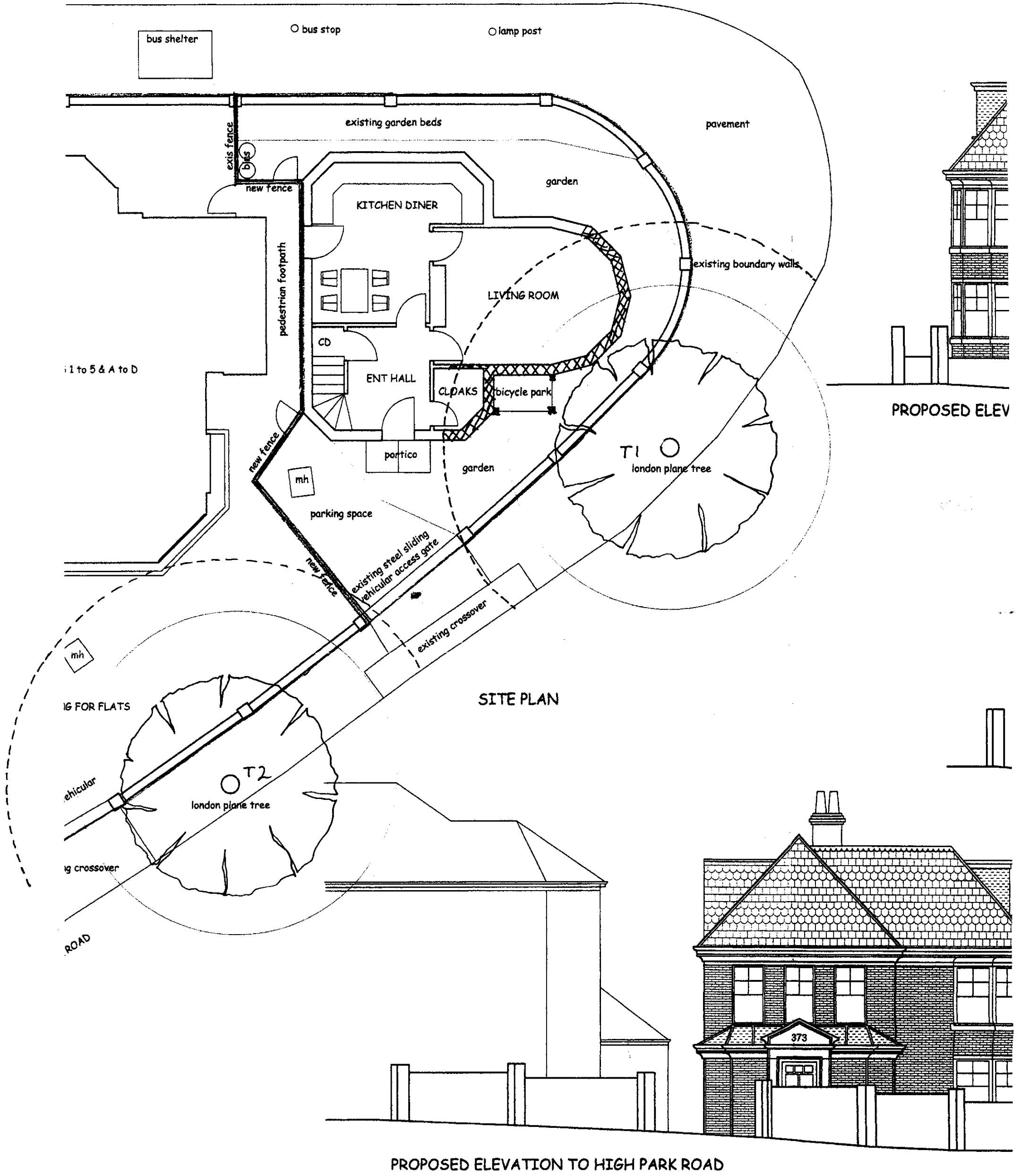
- 1 Height describes the estimated height of the tree from ground level.
- 2 DBH is the diameter of the trunk at 1.5m from ground level. Some trees may be estimated.
- 3 The crown spread refers to the radius from the trunk centre and is expressed as an average of NSEW aspect. Notes are made when necessary.
- 4 Vigour is described as Normal, or Low and refers to the general condition of the tree.
- 5 Age range is represented as Y-young, MA -Middle Aged, M-mature, OM-over mature.
- 6 Useful Life Expectancy -- <10yrs Low; 10-20yrs Medium; 20-40yrs Medium-High; >40yrs High
- 7 BS Category refers to BS 5837 Table 1 A High category; B Moderate category; C Low category and R category which should be removed.
- 8 BS5837:2005 Table 2 Tree root protection radius calculated by multiplying the diameter by 12 or 10. Radius is used to calculate RPA.

Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
<p>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</p>	<ul style="list-style-type: none"> • 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 <p>NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).</p>			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	
<p>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)</p>	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
<p>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)</p>	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
<p>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</p>	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.			

APPENDIX 2

→ N (INDICATIVE)



DRWG - TPP1	
TREE PROTECTION/SURVEY ACS 23.2.07	
XXXXXX	HATCHED AREA FOR HAND EXCAVATIONS
	+ ROOT TREATMENT AS NECESSARY
-----	BS ROOT PROTECTION AREA

Project:-
373 SANDYCOMBE ROAD KEW SURREY

Dwg Title:-

Tree Protection Fencing

Specifications (specifically identified by outline box)

1.5m (min) Chestnut Paling Fence on Scaffold

Chestnut Paling to be affixed to a scaffold framework comprising two horizontal braces (top and bottom) supported by vertical scaffold posts driven firmly into the ground at 4.0m centres or less. Angled supporting struts are to be affixed 'tree-side' as appropriate.

1.5m (min) Chestnut Paling on Wooden supporting frame

Stakes – 1.8m half round 100mm Ø untreated timber posts @ 1.8m centres (or as directed).

- 2 X 38 X 87mm rails (motorway)
- 1.2m Chestnut Paling will be industrially stapled to the rails

Extra wooden support struts to be affixed at an angle on the innermost side of the fence.

2.4m Hoarding

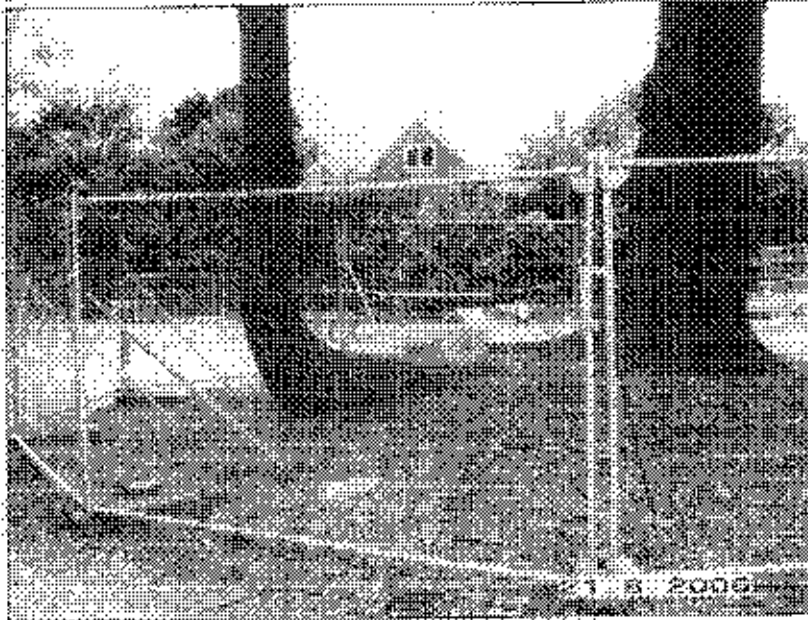
3.0m 100 X 100mm square wooden posts
3 X 38 X 87mm wooden rails affixed to posts
2.4m X 1200 outside grade ply panels (12mm) affixed to rails.
50 X 100mm angled supporting struts affixed internally (quantity as required).

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

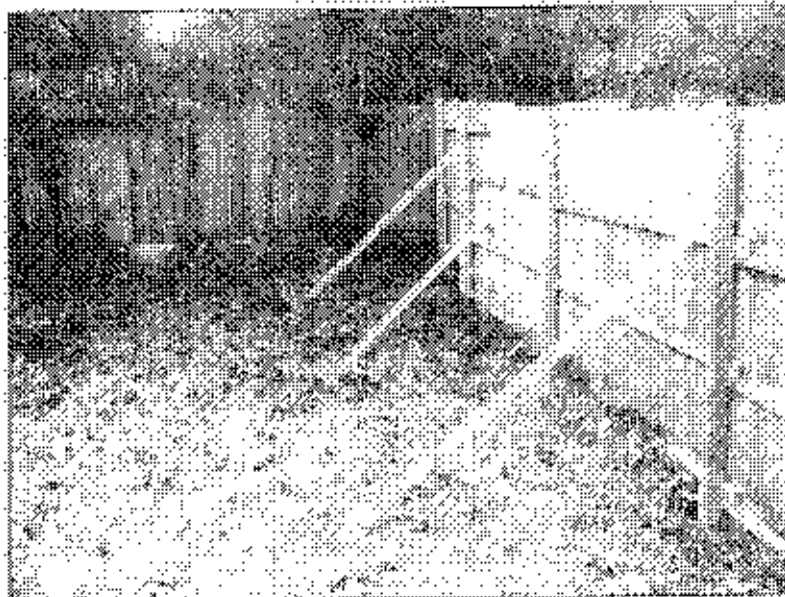
Heras Fencing

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 struts fixed at 45 degrees (tree side) for extra support.



Example 2.
Hoarding-style fencing with robust wooden posts with supports to ensure minimal movement.



APPENDIX 3

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.

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 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 – this can be calculated by multiplying the distance of the tree trunk's circumference (at 1.5m above ground level) by 4 (NJUG 10) 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 precautionary area with ground marker paint, clearly on the ground. This will identify the area within which hand digging must take place. **For safety, ensure there are no underground services 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 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 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 to offer immediate protection. 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 No 10 1995, '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.

11.2a) The secondary tree

- Don't excavate with machinery. Use trenchless techniques where possible. Otherwise dig by hand.
 - When hand digging, carefully work around roots, retaining as many as possible.
 - Don't cut roots over 25cm in diameter, unless the Council's Tree Officer agrees beforehand.
 - Prune roots which have to be removed using a sharp, thin leg saws or a chainsaw. Make a clean cut and leave as much length as possible.
 - 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.
 - Don't repeatedly move large heavy mechanical plant, except on hard standing.
 - Don't store spoil or bulky material, including chemicals, on the site.
- 11.2b) Frost-free storage of exposed roots. If roots are to be left open overnight, cover the roots with dry packing. Remember to remove the packing before backfilling.

NJUG GUIDELINES FOR INSTALLING AND MAINTAINING UTILITY SERVICES CLOSE TO TREES

DAMAGE TO TREES

- (1) Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil. They 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 pavement and into front gardens, but they can also grow under the carriageway.

If roots are damaged, for example by trenching, the tree may fall or lose its vigour and decline.

- (2) Tree trunks can be easily damaged, so be careful when working near them. For example, **don't** lean paving slabs against trees, **don't** chain machinery to them or nail site notices to their trunks.

PROTECTING ROOTS

- (1) Establish a protection zone around each tree: the Precautionary Area. See Fig. 1.

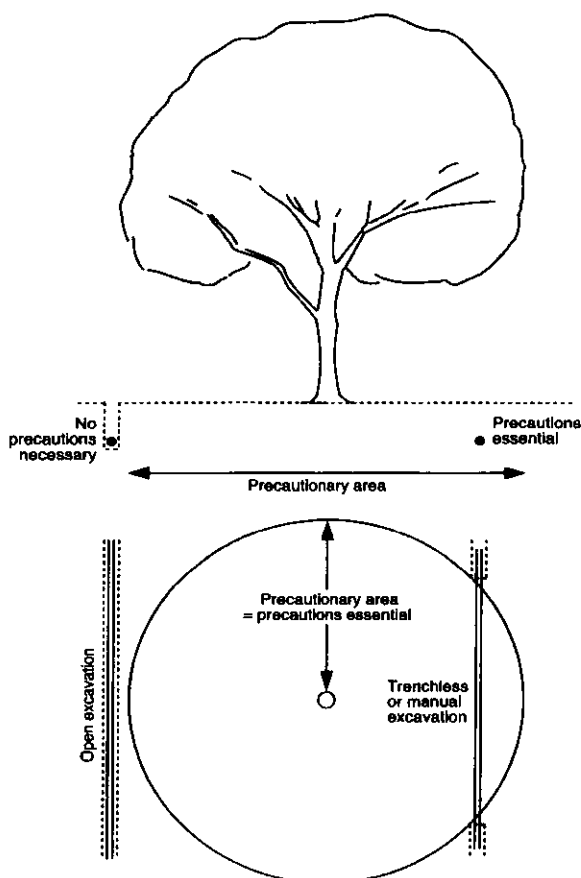


Fig. 1 To determine the Precautionary Area measure the girth of the tree at chest height. Multiply this by 4 and draw a circle of this radius from the centre of the tree.

APPENDIX 4

TREE ROOT PROTECTION : PVC SLEEVING

A TYPICAL REINFORCED
CONCRETE FOUNDATION

PROTECTIVE TUBE
CONCRETE

TREE ROOT

MAXIMUM 6" PVC PIPE
TO LAYERS OUT. SEWAGE IN TWO
DIR. LAYERS AND TANK
WATER SUPPLY TANK CONCRETE
TANK FOUNDATION

