



Arboricultural Report BS5837:2012

Site Name Land off Common Road	Location Common Road, Sissinghurst, Kent
Job Ref 2270117	Document Ref AS01
Site Code None	Grid Reference TQ 78954 37930
Surveyor E Maloney	Date of Survey 27.04.17
Geology/Soil Type Not needed	Designation Pastoral field with hedgerows.

FINAL

connecting buildings, people and environment
landscape architecture and ecology

North Yorks
77 Leeds Road
Tadcaster
North Yorkshire
LS24 9LA

t: 01937 531558
w: www.root-3.com
e: info@root-3.com

Co No. 6127826

Document History

NOTICE

This document has been produced purely for the purpose of supporting the proposed planning application for a proposed development land adjacent to Common Road Sissinghurst, Kent. It may not be used by any person, for any other purpose other than that specified without the express written permission of Root3 Associates Ltd. Any liability arising out of use by a third party of this document for purposes not wholly connected with the above shall be the responsibility who shall indemnify Root3 Associates Ltd against all claims costs damages and losses arising out of such use.

Job Number / REF : 2270117			Document ref : AS01			
Rev	Purpose and Description	Originated	Checked	Reviewed	Authorised	Date
-	For planning	EM	EM	-	EM	02.05.17
A	For planning	EM	EM	-	EM	17.01.18

Contents

1.0	Introduction	I
1.1	Purpose of Report	I
1.2	Scope of Report	I
1.3	National and Local Planning Policy / Guidance	I
2.0	Site Description	3
2.1	Land Use	3
2.2	Photographs	3
2.3	Topography	6
2.4	Treescape	6
2.5	Tree Protection Orders	6
2.6	Amenity Value	7
2.7	Age Class	7
2.8	Species Diversity	7
2.9	Tree Materials Present	7
2.10	Tree retention and constraints	7
2.11	Above and below ground conditions	7
3.0	Arboricultural Impact Assessment and Method Statement AMS	10
3.1	Direct Loss	10
3.2	Tree Protection	11
3.3	Foundations	12
3.4	Service Runs	13
3.5	Level change and retention walls	13
3.6	Shade	13
3.7	Method Statement	13
3.7.1	Tree Work	13
3.7.2	Excavating within Root Protection Areas (RPA's)	13
3.7.3	Finished surface within the RPA	14
4.0	Other Issues	15
4.1	Location of site facilities	15
4.2	Contractor Parking	15
4.3	Slope	15
4.4	Development Phasing	15
4.5	Ecology	16
4.6	Tree legislation	16
4.7	Contract monitoring	16
5.0	Chronology of Events	17
6.0	Conclusion	18
Appendices		
Appendix 1	Tree Survey Data	19
Appendix 2	Tree Constraints Plan TCP01	26
Appendix 3	Arboricultural Impact Assessment Plan AIA01	27
Appendix 4	Default type protective fencing	28
Appendix 5	Alternative fencing	29
Appendix 6	Root protection system	30
Appendix 7	Key to survey data table	31

1.0 Introduction

Root3 Associates Ltd has been commissioned by Invicta Self and Custom Build Limited who will be referred to as *the client*, to undertake an arboricultural assessment at the proposed site.

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are only valid for one year. Any changes carried out to the site as it stands at present, prior to planning approval, eg building of extensions, excavation works, importing of soils, extreme weather events etc will invalidate this report.

Visual tree assessment has been undertaken from ground level utilising aids such as binoculars, sounding hammer and probes where necessary. Where access has been prohibited through fencing or thick scrub, data will be estimated and illustrated as such in the tree schedules in the appendix of this report. I have no connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

1.1 Purpose of Report

It is the intention of the client to submit a planning application for up to 9 self/custom build homes. An indicative site layout has been provided drawing number A1273-102 Rev A.

1.2 Scope of Report

This report will include survey data collected on site on the 27th April 2017; details of individual trees shall be included. Detailing in accordance with BS5837 : 2012 Trees in relation to Design, Demolition and Construction.

Whilst this report has not be compiled as a health and safety, or defect analysis document, where significant issues have arisen they have been included for completeness of survey.

The report is representative of information obtained on that particular date. The planning applicant recognises the amenity value of the trees on site and wishes to retain and protect this amenity where possible before and during construction.

1.3 Policy / Guidance

This report pays particular reference to BS5837 : 2012, National Planning Policy Framework (NPPF) and NHBC Standards.

The NPPF states the planning system should contribute to and enhance the natural and local environment by

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressure

In order to promote good design within Kent, the County Councils design guide section 2.2.9 Design for Open spaces provides advice for developers. It states

Creating new green space

- retain existing trees and other plants and ensure that they are well protected
- use shelter belts to reduce energy consumption
- prepare planned programmes to reduce impacts during construction phase
- ensure species of plants selected are native and of local provenance

Working with the Grain of the Landscape

Existing landscape features should be retained where practical with new layouts designed to enhance both existing landscape features and the new development.

Designing for Green Space Health and Value

The benefits of green space have a direct affect on the quality of life in terms of both physical and mental health. Physical exercise can help to counteract obesity while the opportunity to stroll through green space – especially where immediately accessible – has benefits both in terms of longevity and mental health [The value of public space – CABI Space March 2004]. Shade provided by vegetation can reduce the risk of skin cancers. Foliage absorbs harmful pollutants from car exhaust fumes and releases oxygen into the atmosphere. Property values can be significantly enhanced by their proximity to well designed and managed green spaces.

Ecology

The guide states planning for ecology and nature conservation as an essential element in layout design. *Ecology is the existing or potential natural habitat of a site. It is measured by biodiversity.*

Ecology and nature conservation will provide:

- the requirement to retain or enhance local biodiversity
- educational benefits – wildlife areas can provide informal or formal field laboratories for biological, geographical and environmental sciences, and plants and animals that keep people in touch with their natural environment.

2.0 Site Description

2.1 Landuse

The site is a broadly rectangular shaped field located on the outskirts of the village of Sissinghurst. The field was semi-improved grassland at the time of the survey. The site boundary is marked by mature hedges and in places groups of trees.

2.2 Photographs



Photo 1: An aerial plan showing the site location (Google Maps)



Photo 2: Panoramic showing the eastern boundary grouping T1 left to T9 far right.



Photo 3: T14 Looking west close to school boundary fence



Photo 4: Showing T18-T19 overhanging crowns looking south along western boundary



Photo 5 view looking west along Frittenden Road.
G4 left with T20 and G3 further along the road

2.3 Topography

Levels to site are ostensibly flat across the main central space although there is more noticeable fall to the south east corner where the site meets Common road.

2.4 Treescape

There are a small number of both native tree species appearing within the site including *Oak*, *Poplar*, *Birch* and *Holly*.

2.5 Tree Protection Orders (TPO's)

Tonbridge Wells GIS internet map (<https://tunbridgewells.maps.arcgis.com>) was consulted on the 3.5.17 and there appears to be no protected trees on site. A screen shot has been included below.



Screen shot from Tonbridge Wells GIS map illustrating no TPO's

2.6 **Amenity Value**

The better quality tree groupings found on site should be retained where possible and can provide screening and limit inter visibility.

2.7 **Age Class**

Trees range from young to mature.

2.8 **Species Diversity**

There are a limited number of species on site.

2.9 **Tree Materials Present**

24 individual trees and 6 small tree groups and 9 hedge segments were observed and recorded. With preventative maintenance some of those present could expect a further 20+ years of life within the context of the site.

2.10 **Tree retention and constraints**

The trees have been assessed using the tree retention categories as per BS5837 section 5. Other factors have been taken into account such as end use of the space and future tree development. Trees by virtue of their size above and below ground represent constraints to any development site.

Where the construction of new hard surface access cannot be avoided within root protection areas of retained trees, a no-dig design should be used to avoid root loss due to excavation. In addition the structure of the hard surface should be designed to avoid localised compaction, by evenly distributing the carried weight over the track width and wheelbase of any vehicles that will use the access.

In concentration carbon dioxide is detrimental to tree root function. New impermeable surfacing within the RPA should be restricted to a maximum width of 3 m and situated tangentially to one side of a tree only, or confined to an area no greater than 20 % of the root protection area, whichever is the smaller, to allow moisture infiltration and gaseous diffusion.

2.11 **Above and Below Ground Constraints**

Above Ground

Tree damage associated with a development can often be caused in the first

stages of a project, this damage can occur in two main areas above ground, the stem and the crown

Direct damage from plant, machinery to the stem and branches, rarely kills a tree, but can significantly reduce its amenity value.

A large branch broken from a tree will reduce the trees optimisation of uniform stress i.e. its natural balanced structure. The resulting new stress distributions may cause mechanical failures in the crown in the future.

Wounds to the stem and crown will give access to pathogens; subsequent decomposition may cause mechanical failure

Fires damage to a crown can be fatal; at best it causes a serious disfiguration of the crown. This serious reduction in amenity value is often permanent, a fire does not have to be adjacent to or within a crown spread to cause damage and a large fire can damage trees up to a distance of 20metres.

Below ground, root system

The roots of a tree are very sensitive to disturbance and any change of surrounding soil conditions. A small amount of root damage in a mature, less vigorous tree will effect its subsequent growth, health and safety and life expectancy.

Roots can be damaged or destroyed in two main areas either directly by their cutting or removal during excavations, or through changes in ground levels / soil stripping.

The majority of trees roots are within the top 60cms of the soil which it grows. Therefore any trenching excavations, or leveling works however minor, will have very damaging consequences for a tree if they are within its rooting zones.

The majority of trees roots are fine hair like structures usually less than 0.5mm in diameter. They are responsible for the active uptake of water and nutrients for the tree. Their relationship with the surrounding soil is intimate but delicate. Anything that affects this intimate relationship will affect the roots hence the viability of the tree

Heavy machinery passing over the ground will cause the soil to compact, 80 % of soil compaction is caused by the first vehicular movements. This will effect respiration, gaseous diffusion will be restricted and carbon dioxide will increase leading to root asphyxiation and root death.

The same effects caused through compaction can occur through the raising of the soil levels, or covering with impervious material areas within the rooting zone.

3.0 Arboricultural Impact Assessment and Method Statement AMS

3.1 Impacts of the proposed development

Table I below lists the number and quality of trees that will require removal in order to facilitate the development plan number A1273-102 Rev A (17.01.18) and those that can be retained. This is the result of an assessment based on the proposed site plan. See Schedule (appendix I) and Arboricultural Impact Assessment plan AIA01C (appendix 3).

Table I Arboricultural implications of the proposed development

	Tree Quality Category				
	A	B	C	U	Hedges
Trees / Groups that can be retained	T3,T9,T11, T18	T1-T2,T5-T8,T10,T17	T4,T12-T15, T16,T19-T24 G1-G6	/	H1-H9
Total	0	3	10	0	2
Trees, groups and hedges that require removal	/	/	/	/	Partial removal of hedge H8 for new access road and footpath estimated 17m
Total	0	0	0	0	0

3.1.1 No trees appear to require removal.

3.1.2 Crown management will be required to some of the trees with canopies overhanging into site to improve ground clearance and remove dead or hanging wood within the canopies. Refer to the schedule appendix I within this report.

3.1.3 There appears to be very slight driveway incursion into the RPA of tree T3 on unit 9. Given the small nature of the incursion and protective measures outlined here, it is reasonable to assume there will be no damage to the tree.

Although the estimated incursion is estimated to be some 2.7% of the RPA, the client should take care when excavating this area and **must** use the method statement contained within this report (3.7).

- 3.1.4 The protective fence line shown **must** be honoured and **only** moved to finally excavate the small area of the drive.
- 3.1.5 Appropriate tools for manually removing debris may include a pneumatic breaker/drill, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a bow saw must be available to deal with any exposed roots that have to be cut.

Machines if used **must** have a long reach and work from outside RPAs or from areas protected by ground protection designed for the loading within the RPA. Debris to be removed from RPAs manually must be moved across existing hard surfacing or temporary ground protection to prevent compaction damage. If possible, leaving below ground structures in place should be considered if their removal may cause excess root disturbance.

3.2 Tree Protection

The following information sets out primary considerations in determining the requirement for tree protective measures

As per BS 5837:2012, the **Root Protection Area (RPA)** is calculated using each tree's diameter at 1.5 metres (refer to Appendix I) and represents the minimum area around each tree that must be left undisturbed to ensure their survival.

Tree roots typically spread two times the width of the crown, although this figure may be significantly increased for certain species and where specific ground conditions are present.

The majority of tree roots are found in the top 600 mm of soil and most of the fine roots that absorb water and nutrients are found in the top 100 mm.

The morphology of roots is influenced by past and present site conditions (the presence of roads, structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in their extent and the **RPA** may not be a circular area centred on the tree stem.

The RPAs (pink) shown on Drawing TCP01 most accurately represent the likely distribution of roots for each tree and group.

- 3.2.1 Those trees being retained should be protected during the build phase. The simplest and most effective way to prevent damage to any tree is the provision of a construction exclusion zone around the tree and its rooting zone.

Individual root protection areas (RPA) as calculated in this report, will be confirmed on the ground with the erection of a default type frame with a wire mesh attached as per BS5837 section 9 (see appendix 4 illustration of barrier protection). Where this type of fence is unsuitable or impractical it would be acceptable to install an alternative specification such as Harras fencing as shown in Appendix 5. Drawing TCP001 indicates the position of fencing required.

Access will need to be provided for the PROW adjacent to T1-T9. The area protected by barriers will be considered sacrosanct and will not be entered into by construction contractors without consultation with the commissioned Arboricultural / Landscape Consultant and Local Authority Tree Officer.

The weld mesh panels should be 2m tall and mounted on rubber or concrete feet and erected before any development takes place. The panels should be joined together using a minimum of two anti-tamper couplers, installed so as they can only be removed from the inside of the fence. The distance between the couplers should be at least 1m and should be uniform throughout the fence.

The panels should be supported on the inside by stabilizer struts, which should normally be attached to a base plate secured with ground pins (figure 3a) appendix 4. Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (figure 3b).

- 3.2.2 Once erected its correct position will be confirmed by a suitable arboriculturalist. This confirmed position must not be altered or the fence itself removed at any time unless agreed with the local authority. The tree protection zone will contain and display information highlighting the protected tree and all tree related responsibilities of all individuals working on site.

Within the protected zone, or in areas adjacent, no activity will be allowed that may cause damage to a tree:

No change in ground level, wither raised or reduced
No excavations or trenching of any kind
No compaction of soil, through vehicle equipment movements
No material storage of any kind for even a short time
No loading or unloading of materials at any time
No fires inside or within 10 meters of any protection zone
No mixing of materials (cement etc) inside or within 10 meters of the zone

3.3 New Foundations

If shrinkable clay soils are present on site the guidance given in the National

House Building Council (NHBC) Standards chapter 4.2 should be used to avert the risk of future subsidence of new buildings.

3.4 Service Runs

For effective tree protection all service runs should be plotted and sanctioned by an arboricultural consultant. Any underground services should be routed to avoid the construction exclusion zones and root protection areas.

3.5 Level Changes and Retaining Walls

Any changes in levels or slopes need to comply with the constraints attached to the construction exclusion zone. Any plans to construct retaining walls adjacent to the boundaries of necessary tree root protection areas will need to consider the effect of local soil hydrology and the impact that this may have on the health and stability of retained trees.

3.6 Shade

No detailed assessment of the potential conflict between future site use and the shade cast by trees has been undertaken within this report.

3.7 Method Statement

3.7.1 Recommendations of Tree Surgery

Observations and recommendations have been identified in the tree survey schedule (Appendix I). There may be additional work required crown shaping etc to some degree, outside that mentioned in this report, where proximity to development buildings is unavoidable. A qualified arborist should be used for all works on site.

3.7.2 Excavating within Root Protection Areas (RPA's)

A suitable method statement for hand excavating inside or close to root protection areas to avoid unnecessary root damage or disturbance is provided below. It may be that further excavations are required and after agreement with the on site arboriculturalist and local planning authority the following method statement as per BS5837 section 11 may be adopted.

This must be carried out using an air spade before any mechanical bucket is applied.

Damage to the protective bark covering larger roots is to be avoided.

Any excavated roots are to be wrapped in dry clean hessian sacking to prevent drying.

Roots smaller than 25mm should be severed once assessed by a qualified arborist.

Roots larger than 25mm should only be severed once assessed by a qualified arborist.

Prior to backfilling any roots should be removed from the Hessian and surrounded by sharp sand, or other loose granular fill, before soil or other material is replaced. The backfill is to be free from any contaminants or foreign objects.

3.7.3 Finished surfaces within the RPA

Hard surfaces

A method statement for a no dig bearing surface is provided below as per BS5837 section 11. Please see appendix 6 for an outline construction profile of load bearing surfaces. A structural engineer should be consulted for the load bearing requirement and the correct 3D cellular confinement system to be used.

The depth of any cellular system should be appropriate to the application i.e. for a car parking application a minimum of 150mm is to be used.

Remove major obstructions such as rocks or old stumps.

Fill major hollows with sharp sand.

Lay the necessary 3d cellular confinement systems directly on to the soil over the whole of the area designated for no dig.

If necessary construct an edging with boards attached to pegs driven into the ground through the 3d confinement system. Pegs should be long enough to give sufficient support.

Cover the 3d confinement system with a minimum of 100mm of aggregate. This should not be tipped straight onto the 3d confinement system, but should be placed at one end and then pushed into the grid so that machinery moves on the spread sub base not directly on the geo grid and not on the ground either side.

Compact the sub base to ensure binding and to minimize future rutting.

Place the final surface. In the main it is likely that this will consist of gravel or tarmacadam, although having paving slabs and brick pavements may be acceptable provided they are dry bedded on the sub base and the joints are not sealed with grout, to allow infiltration of water and gaseous diffusion.

If the proposed area for hard surfacing covers 20% or be wider than 3m within the RPA, it should be constructed using materials to allow infiltration and gaseous diffusion.

Excavations for soft landscaping works within the RPA of any tree identified for retention will be made using hand tools and restricted to 300mm in depth. If any major roots are encountered they will be dug around leaving the protective bark covering intact.

4.0 Other site issues.

4.1 Location of site facilities

The siting of temporary site facilities has not been identified on the existing site plans. Any temporary site facilities such as site huts, offices, toilets and car parking must be positioned outside the root protection areas and construction exclusion zones of any retained trees unless the ground is otherwise protected by existing hard standing.

4.2 Contractors parking

This is to be located away from the protected trees. Vehicles are not to encroach into the root protection area.

4.3 Slope

It is recommended that all mixing and storage of materials /chemicals be done on a prepared flat surface with sealed sides to prevent run off. Storage of all chemicals / materials likely to cause harm to trees should be in a sealed container or area with a bund to prevent run off if spillages occur.

4.4 Development phasing

Following written consent from the local authority all recommended arboricultural works are to be carried out. The appointed on site arborist should reassess the retained trees and provide further comment if needed.

All barrier protection should be erected before any development (including excavation and demolition) or contractors are allowed on to site, the positions are to be confirmed as correct by the on site arborist and local authority. All

barriers are to have signage attached every 3m; this is to provide information of tree protection limits and prohibitive activities.

The location for parking and storage huts should be agreed before any development (including excavation / demolition) or contractors are allowed on site.

4.5 Ecology

Nesting birds and some mammals are protected under the Conservation of Habitats and Species Regulations 2010, Wildlife and Countryside Act 1981 and (as amended) Wildlife and Countryside Act 2000.

At the time of writing this report a phase I habitat survey of site has already taken place and further extensive protected species surveys are scheduled in line with current guidance over the spring/summer period 2017 for both bats and dormice.

4.6 Tree legislation

It is a criminal offence without consent from the local planning authority to lop, top or cause willful damage destruction to a protected tree. Such activities could lead to prosecution and if convicted if the magistrates court a fine not exceeding £20,000. If the case is referred to the Crown Court the fine could be unlimited.

If planning consent is granted the local authority may attaché planning conditions protecting the tree and required suitable protection to be implemented as provided in this report. It will then become an offence to breach the tree protection planning conditions.

4.7 Contract Monitoring

Once planning permission has been granted it is important that an open line of communication is maintained between the Contractors, Arboricultural Consultant and the Local Planning Authority. The Arboricultural Consultant should be called upon to give advice and act as a watching brief where the trees are likely to be impacted by construction operations.

Protective tree barriers will be inspected by the appointed Arboricultural Consultant before the start of any construction operations and the site inspected prior to the removal of the barriers following construction. Site visit inspection sheets should be completed and made available to the client and tree officer.

5.0 Chronology of events for arboricultural work

Planning Stage

1. Tree Survey – **completed.**
2. Arboricultural Implications Assessment, Method Statements and Tree Protection Plan – **completed.**

Pre Construction Phase

3. Supply all main contractors with a copy of the Tree Survey report including the Arboricultural Impact Assessment, Arboricultural Method Statement and the Tree protection Plan.
4. Apply for tree conservation decision (if required) and if successful carry out any remedial tree works.
5. Prepare any further site specific Arboricultural Method Statements that may be required, **eg installation of services and bird/bat/dormice nesting surveys.**
6. Erect protective fencing as detailed on the Tree protection Plan no: R3_2270117_TCP01 (Appendix 2) and in section 3.0 Arboricultural Impact Assessment and Method Statement contained in this report.
7. Site inspection by Arboricultural Consultant before construction begins.

Construction Period

8. Consult with an appointed arboriculturalist where any trees are likely to be impacted upon, during construction operations not identified in the Arboricultural Impact Assessment.
9. Site inspection by appointed Arboricultural Consultant following completion of construction and prior to the removal of tree protective barriers.

6.0 Conclusion

- 6.1 The planning applicant has recognised their responsibility for tree based amenity, retention and protection in the production of this tree report.
- 6.2 The sketch plan A1273-102 Rev A provided 17.01.18 has been very carefully designed to conserve those trees and hedges of greatest ecological value and importance to the public realm. The retention of the trees along eastern, southern and western boundaries provides a sense of separation between neighbouring sites and road approaches.
- 6.3 Routing the access road from the eastern elevation on Common Road centrally and then offset from the PROW and tree groupings allows a good degree of clearance. There is also a generous gap to the rears of units 5– 8 which should help minimise overshadowing.
- 6.4 There is one minor incursion within the T3 RPA's. Careful excavation here should be carried out using an Airspade in the first instance and guidelines followed in section 3.7.2.
- 6.5 It is clear any new building and resurfacing could increase the risk of damage and disturbance to the existing tree community, particularly through site service access and material handling areas during the build phase.
- 6.6 A suitable method statement to ensure the protection of the retained specimens at all stages of the development has been produced within this report.
- 6.7 Given extended ecology survey findings and in accordance with protected species guidance, a buffer zone of 3m marked out with hazard tape will also be required to protect the hedges on site.
- 6.8 There appears an opportunity to add a considered variety of new tree and species rich hedge planting within any new landscape scheme to increase amenity value, reinforce local character and ameliorate visual impact along the approaches. The species chosen for this new planting should be appropriate for the site constraints, include where possible locally native or ornamental species which provide nectar and berries, be robust and sustainable with a management plan in place to ensure post construction survivability.
- 6.9 This tree report has determined that providing remedial works, tree protection and mitigation is provided then a suitable development offering additional social, economic and environmental benefit could be successfully achieved whilst retaining much of the better tree population present

Appendix I

Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/lem/m/o	RPA radius
T1	Oak	420	14	3 3 2 4	F	A	B2	Tree within hedge line running north / south Canopy bias as conflicts with T2 Previous wounds visible of clearance of lower 1 st order west Some dead wood to 2 nd order south at 8m Ground clearance west over footpath to 4m Hazel and Hawthorn within drip line as part of hedge to 7m Ivy clad Hazel stand passes very close to bole east	20+	em	5
T2	Oak	470-	13	2.5 2 3 4	F	A	B2	Tree within hedge line running north / south Young Hawthorn stand close 1m to SE to 9m in height Ground clearance west to 3.5m. Some dead wood observed Understory of Hawthorn, Hazel, Bramble and Holly Canopy suppressed by T1 north	20+	em	5.6
T3	Oak	880	21	7 9 10 8	G	A	A2	Lower dead wood and damage to 1 st order E/SE Ground clearance east to 3m could raise to 6m if required. West over the footpath currently 5m could raise to 5m Ivy to 16m sever at 1.5m and remove Dead wood to 2 nd order west. Clean through	20+	m	10.6
T4	Oak	Est 400	14	5 5 4 2	F	A	C2	Placement off the hedge line to east. Extensive dead wood to lower canopy to 7m Ground clearance to 1m around could raise to 5m Ivy to 5m, Bifurcates at 5m canopy suppressed and conflicts with T3 and T5 west biased crown. Dense understory of Bramble and nettle	20+	em	4.8
T5	Ash multi stem	250-380	18	3 8 2 4	F	P	B2	Tree within hedge line running north / south Hasn't flushed, 4x co dominant stems , Canopy bias east Ground clearance to east 1m could raise to 5m Becoming host for climbing bramble SE co dominant steeply leans some 45 degrees from vertical .	20+	m	4.6
T6	Oak	590	20	3 5 1 7	F	A	B2	Tree within hedge line running north / south Epicormic shoots to south showing previous pruning damage Dead wood to 2 nd order south at 8m Ground clearance to west 6m	20+	m	7.1

Appendix I

Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	RPA radius
T7	Oak	700	20	1 7 5 7	F	A	B2	Appears to bifurcate at 2m north / south into two further forks at 4m. Canopy conflicts and suppressed by T6 Southern union potentially weak Mature Ivy vines to all co dominant stems sever at 1.5 and remove for future management. North co dominant stems spiral around each other Ground clearance west to 3m raise to 5m possible. Understory young hawthorn and hazel east and south	20+	m	8.4
T8	Oak	680	20	6 2 6 6	F	A	B2	Canopy bias west conflicts and suppressed with T10 Ivy to 12m sever at 1.5m and remove for future management. Maturing Holly and Hawthorn to 7m in height within the drip line south Ground clearance west to 3.5m raise to 5m if required over footpath.	20+	em	8.2
T9	Oak	1350	20	8 11 10 9	G	A	A2	A veteran tree within boundary hedge to school edge Previous management wounds evident to lower 1 st order east Evidence of previous failed limbs to south Dead wood present to 2 nd order south/sw/ at 5m No work required, monitor	20+	m	15
T10	Oak	1300	21	12 9 8 7	F	A	B2	Hasn't flushed, possibly in decline in comparison to T9 and T11 Ivy to extents of canopy restricting visibility, sever at 1.5m and remove for both health and future management Some dead wood to N/NE 2 nd order Ground clearance to NE 5m canopy conflicts and suppressed by T11 and T8 Maturing young stands of hazel within drip line.	20+	o	15
T11	Oak	Est 1400	22	12 9 9 8	G	G	A2	Access difficult due to dense bramble Appears in good health with balanced crown Some dead wood to 1 st order north at 9m and south west at 7m Young holly stands within drip line to 1m to NW to 8m height Ground clearance to south to 5m and school car park boundary north	20+	o	15

Appendix I

Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	RPA radius
T12	Oak	390	22	1.5 1 5 2	F	P	C2	Young tree close to school fence 1m south High holly hedge line developed to north meaning canopy is biased south. Ground clearance to south 2m in school site Ivy to bole, no work required	20+	em	4.7
T13	Oak	280	16	1 1 2.5 2	F	A	C2	Young tree close to school fence Clear stem to 6m neat form No work required Canopy suppressed east by T14	20+	em	3.4
T14	Oak	400	16	3 5 6 3	P	P	C2	Young tree close to school fence Remnants of previous diseased / dead tree to north 1m Clearance to building south 2m Ground clearance south within school to 2m	20+	em	4.8
T15	Oak	400	16	4 2 5 2	F	P	C2	Young tree close to school fence Ivy to stem to 8m sever at 1.5 and remove Dead wood to west at 8m Ground clearance south to 2m within school Lower 1 st order south at 5m exhibits a longitudinal split, remove for health and safety Hazel stands to 10m in hedge drip line.	20+	em	4.8
G1	3x Oak	150-360	13-14	To edge	F	A	C2	A small grouping behind hedge line close to school boundary Canopy bias south SW tree has potential weak union monitor	20+	em	4.3
G2	10+ Holly 1x Oak	90 – 200	11-13	To edge	F	A	C2	Unmanaged boundary hedge Large failed Oak stem to ground behind parallel to hedge line.	20+	em	2.4

Appendix I

Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	RPA radius
T16	Ash	Est 190 – 320	20	To Edge	F	A	C2	Estimated details as off site to west, not on topographical survey Leaning NE into site Ground clearance to 4m Ivy to stem monitor.	20+	em	3.8
T17	Poplar	Est 950	26	10 14 12 12	G	A	B1	Estimated details as off site to west Failed 1st order at 9m south Viscum album (Mistletoe) observed No work required Understory of Birch to 11m to south within drip line.	20+	m	11.4
T18	Oak	Est 700	22	5 6 6 8	G	G	B2	Ground clearance east to 2m rasie to 5m if required. Balanced crown No work required.	20+	m	8.4
T19	Oak	550	16	5 5 4 4	F	A	C2	Dead wood to canopy offsite west Ground clearance to east within site 1m rasie to 5m as required.	20+	m	6.6
G3	1 x Holly 1x Hornbeam	70 - 200	10	2 3 3 4	P	A	C2	Little management an untidy group of two trees with canopy conflicts Ground clearance south to 4m Topographical survey doesn't pick up holly	20+	em	2.4

Appendix I

Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	RPA radius
T20	Holly	250	11	2 2 2 2	F	G	C1	In boundary hedge to north Maintained as hedge from inside the site Stems obscured	20+	em	3
G4	1x Holly 1x Hazel	To 250	10	2 2 1 2	F	A	C2	Untidy group growing within boundary hedge Maintained as hedge from inside the site Stems obscured	20+	em	3
T21	Holly	Est 180	6	2 3 4 4	P	A	C1	Growing in hedge line to NE 2m from T22 Dense bramble obscuring sight line to main stems previous pruning wounds to South and west	20+	em	2.2
T22	Oak	150	7	0 1 1 1	P	A	C1	Poor form suppressed by T21 and hazel to east at 6m in height Hawthorn growth to 5m within drip line	20+	y	1.8
T23	Ash multi stem	200-350	16	7 5 4 5	F	A	C2	7x co dominant stems , epicormic shoots access prohibited through dense undergrowth Some decay to lower 1 st order east Would benefit from closer inspection of union for decay Ground clearance to north 2m raise to 7m if required	20+	m	4.2
T24	Ash multi stem	To 200	14	5 2 2 2	F	A	C2	4x co dominant stems ivy to bole, sever at 1.5 and remove dead wood to north 2 nd order at 4m Holly understory to 7m Ground clearance to north of 3m raise to 7m if required.	20+	em	2.4

Appendix I

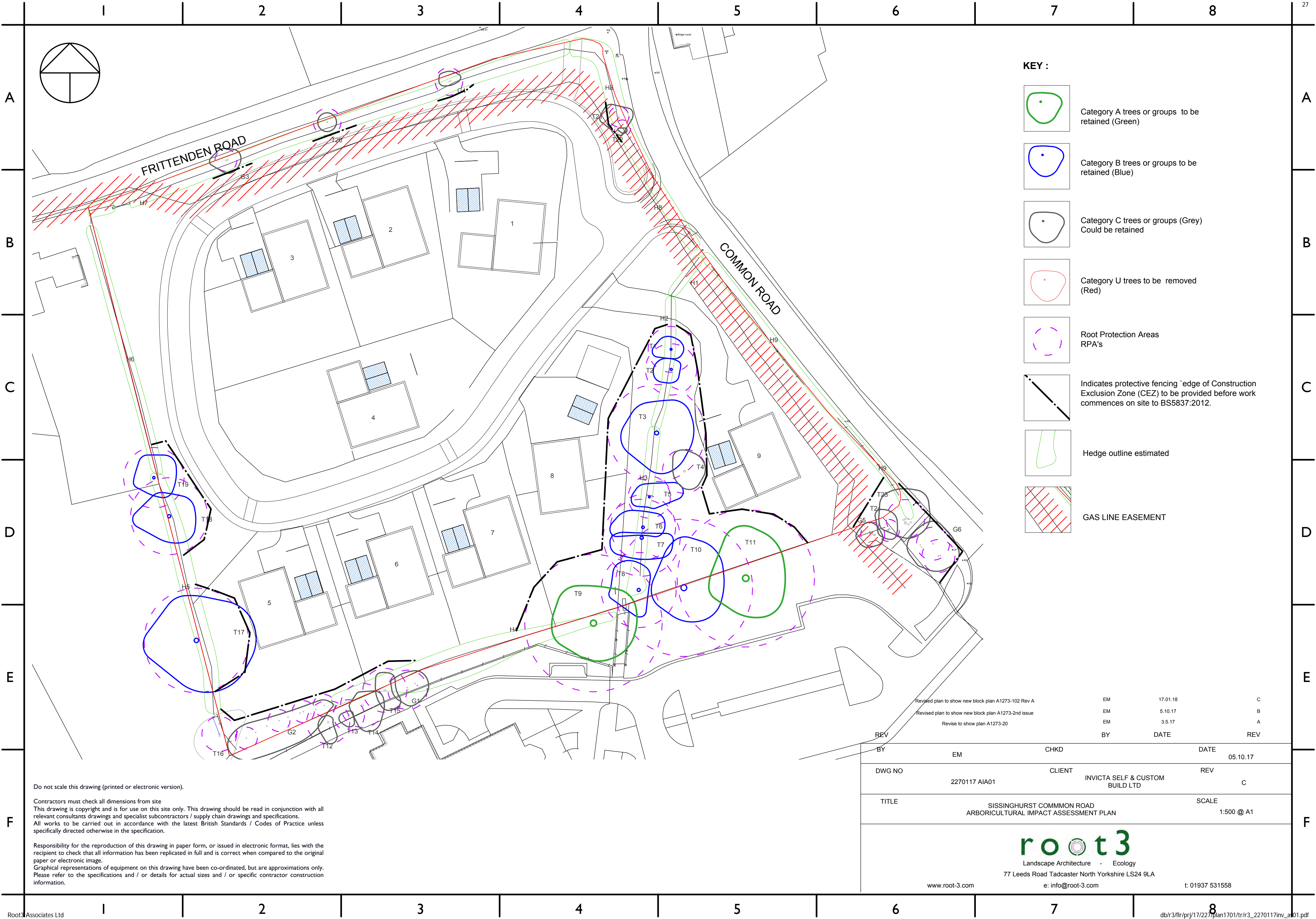
Tag Number	Species	Dia mm	Height M	Crown M N E S W	Condition P/F/G/VG	Vig P/A/G	Ret Cat U/C/B/A	Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	RPA radius
G5	3x Hawthorn	To 220	9	To edge	F	A	C2	Poor form, Ivy to stems Ground clearance north to zero raise to 5m if required. Close to fence line and edge of gully	20+	em	2.6
G6	5x Ash	To 300	15	To edge	F	A	C2	Group of 5 ash to road edge, all but one in serious decline Eastern example shows longitudinal wounds and bark stripping Understory of bramble and Hawthorn between 3 – 6m in height.	20+	em	3.6

Appendix I

Tag Number	Species	Height M	Width M	Condition P/F/G/VG	Vig P/A/G		Observations & Recommendations	Life Expectancy	Age Class y/em/m/o	
H1	Hawthorn	2	1.5	G	G					
H2	Hawthorn / Hazel	5-7	1 - 2	F	A					
H3	Hawthorn / Hazel	3-5	1.5	F	A					
H4	Hawthorn Hazel and Holly	5-8	1 - 2	F	A					
H5	Hawthorn Holly Birch	6 - 11	2 - 3	F	A					
H6	Hazel / Hawthorn	2	1	G	G					
H7	Holly / Hazel	3	2	G	G					
H8	Hawthorn / Hazel	3	2	G	G					
H9	Hawthorn / Hazel	3-4	2	G	G					



Root3 Associates Ltd | 2 3 4 5 6 7 8 db/r3/flr/prj/17/227/plan1701/tr/r3_2270117inv_a01.pdf



KEY :

- Category A trees or groups to be retained (Green)
- Category B trees or groups to be retained (Blue)
- Category C trees or groups (Grey) Could be retained
- Category U trees to be removed (Red)
- Root Protection Areas RPA's
- Indicates protective fencing 'edge of Construction Exclusion Zone (CEZ) to be provided before work commences on site to BS5837:2012.
- Hedge outline estimated
- GAS LINE EASEMENT

Do not scale this drawing (printed or electronic version).

Contractors must check all dimensions from site. This drawing is copyright and is for use on this site only. This drawing should be read in conjunction with all relevant consultants drawings and specialist subcontractors / supply chain drawings and specifications. All works to be carried out in accordance with the latest British Standards / Codes of Practice unless specifically directed otherwise in the specification.

Responsibility for the reproduction of this drawing in paper form, or issued in electronic format, lies with the recipient to check that all information has been replicated in full and is correct when compared to the original paper or electronic image. Graphical representations of equipment on this drawing have been co-ordinated, but are approximations only. Please refer to the specifications and / or details for actual sizes and / or specific contractor construction information.

Revised plan to show new block plan A1273-102 Rev A	EM	17.01.18	C
Revised plan to show new block plan A1273-2nd issue	EM	5.10.17	B
Revise to show plan A1273-20	EM	3.5.17	A
REV	BY	DATE	REV

BY	EM	CHKD	DATE	05.10.17
----	----	------	------	----------

DWG NO	2270117 AIA01	CLIENT	INVICTA SELF & CUSTOM BUILD LTD	REV	C
--------	---------------	--------	---------------------------------	-----	---

TITLE	SISSINGHURST COMMON ROAD ARBORICULTURAL IMPACT ASSESSMENT PLAN	SCALE	1:500 @ A1
-------	--	-------	------------

root3

Landscape Architecture - Ecology
77 Leeds Road Tadcaster North Yorkshire LS24 9LA

www.root-3.com

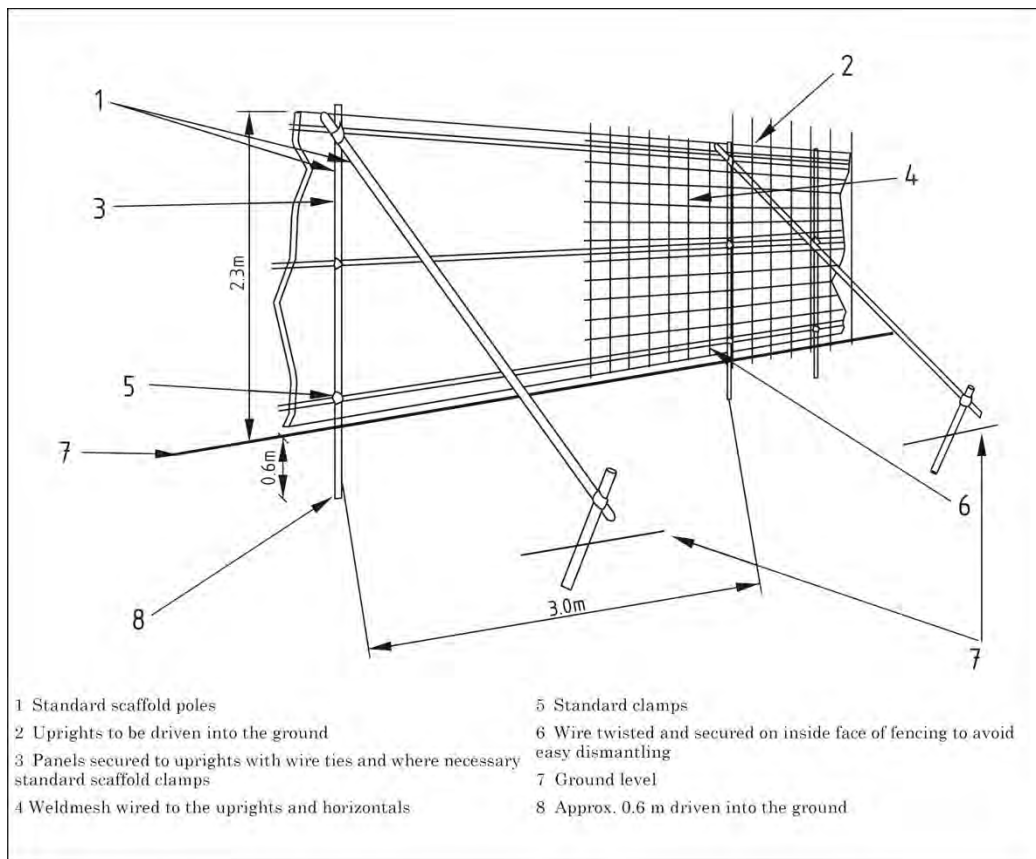
e: info@root-3.com

t: 01937 531558

Appendix 4

Default type protective fencing

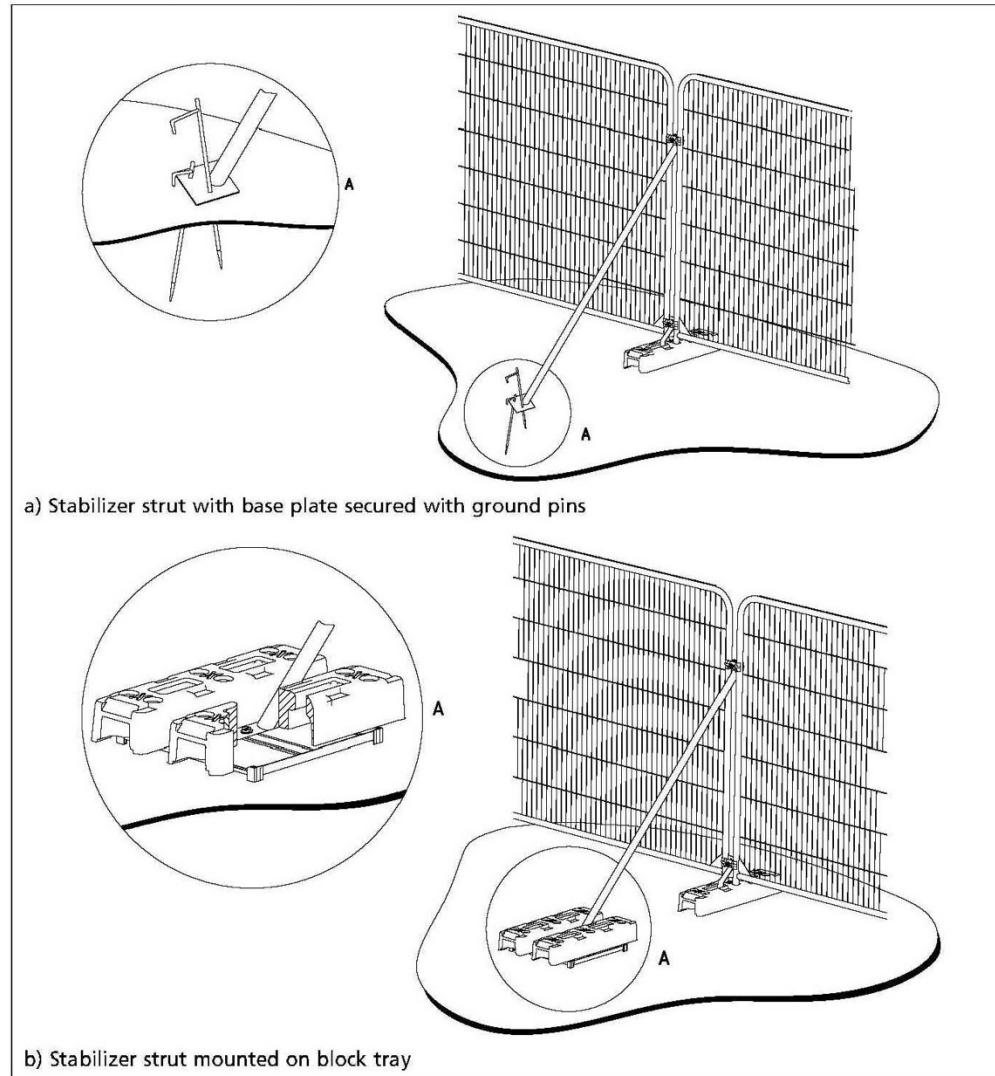
Protective default fencing as illustrated in BS5837:2005 should be used to define RPA's.



Appendix 5

Alternative Harras Fencing

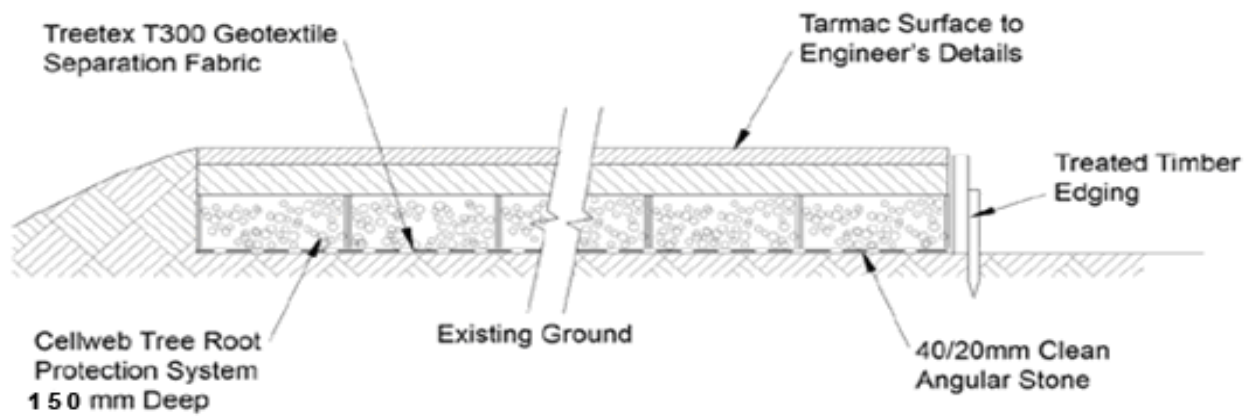
Figure 3 Examples of above-ground stabilizing systems



All weather notices will be attached to all protective tree barriers with the words:
“CONSTRUCTION EXCLUSION ZONE – NO ACCESS”

Appendix 6

No dig illustration, taken from www.geosync.co.uk,



Cellweb Root Protection System

Appendix 7

Key to table I Appendix I

Tree No:	Tree Number as per the drawing.
Species- common name	Species. Common name only.
Dia:	Trunk diameter measured at approximately 1.5m above ground level (m/s: Multi-stemmed) measured in millimetres.
Height:	Estimated in metres.
Crown:	Total canopy spread measured in meters.
Condition:	This has been classified as Poor, Fair, Good and Very Good.
Vig.	Current growing condition Poor, Average, Good.
Estimated Remaining Life Span:	Remaining contribution in years (life expectancy).
Maturity:	This has been recorded as follows;
Young:	Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. up to 12-14 cms stem girth.
Early-mature:	An established tree but one which has not reached its potential ultimate height and has significant growth potential.
Mature:	A mature specimen with limited potential for any significant increase in size but with a reasonable safe life expectancy.
Over-mature:	A senescent or moribund specimen with a limited safe life expectancy, though veteran trees may have exceptionally long life spans.

Retention Category

A: High Quality and Value Retention is Most Desirable. **marked green on the plan**

Trees of high quality and value: These should be in such a condition as to be able to make a lasting 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 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 or woodlands of particular conservation, historical, commemorative or other value (e.g. veteran trees)

B: Moderate Quality and Value Trees where Retention is Desirable marked blue on the plan

Trees of moderate quality and value: These should be 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 slightly impaired condition

Trees present in numbers, usually as groups or woodlands, such that they form distinct features, 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.

C: Low Quality and Value Trees which could be Retained marked grey on the plan

Trees of low quality and value: These should be trees of indifferent quality, though currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested)

Trees whose retention would not require disproportionate expenditure of resources, including young trees with a stem diameter of less than 150mm (at 1.5m above adjacent ground level)

Trees present in groups or woodlands, but without this conferring on them a greater landscape value, or trees offering little or no screening benefit

Trees with insignificant conservation or other cultural benefits

U: Undesirable for retention trees for Removal marked red on the plan

Trees which in the current context should be removed for reasons of sound arboricultural management.

Trees that have a serious, irremediable, structural defect, such that their loss is expected (within 10 years), including those that will become unviable after removal of other trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)

Trees that are showing signs of significant decline such that any existing value would be lost within 10 years

Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease)

Further sub-categories to the above **A**, **B** and **C** trees are provided as suffix 1, 2 & 3 the definitions of which are described as follows:

- 1 – Mainly Arboricultural value
- 2 – Mainly Landscape value
- 3 – Mainly cultural/conservation values