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Arboricultural Consultancy

Pre-Development BS5837 Arboricultural Implications Assessment

7 North Avenue

Produced for Mr and Mrs Campbell
By Jim Richardson BSc For. HND Arb.

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Document Details

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1. Introduction

1.1. Squires Barnett Architects have commissioned this pre-development Arboricultural Impact Assessment report on behalf of their clients Mr and Mrs Campbell for the proposed development of extensions to the existing house at 7 North Avenue, Harton, South Shields, NE34 6AX.

1.2. The survey and resulting report have been produced to be submitted as part of the planning application for the site to the local planning authority and have been produced in accordance with the best practice guidelines set out in BS 5837 (2012) *Trees in Relation to Construction Sites: Recommendations.*

1.3. Documentation used in preparation of this report: CAD files - 34991_01-02_PE and 1951_North Avenue_Planning.

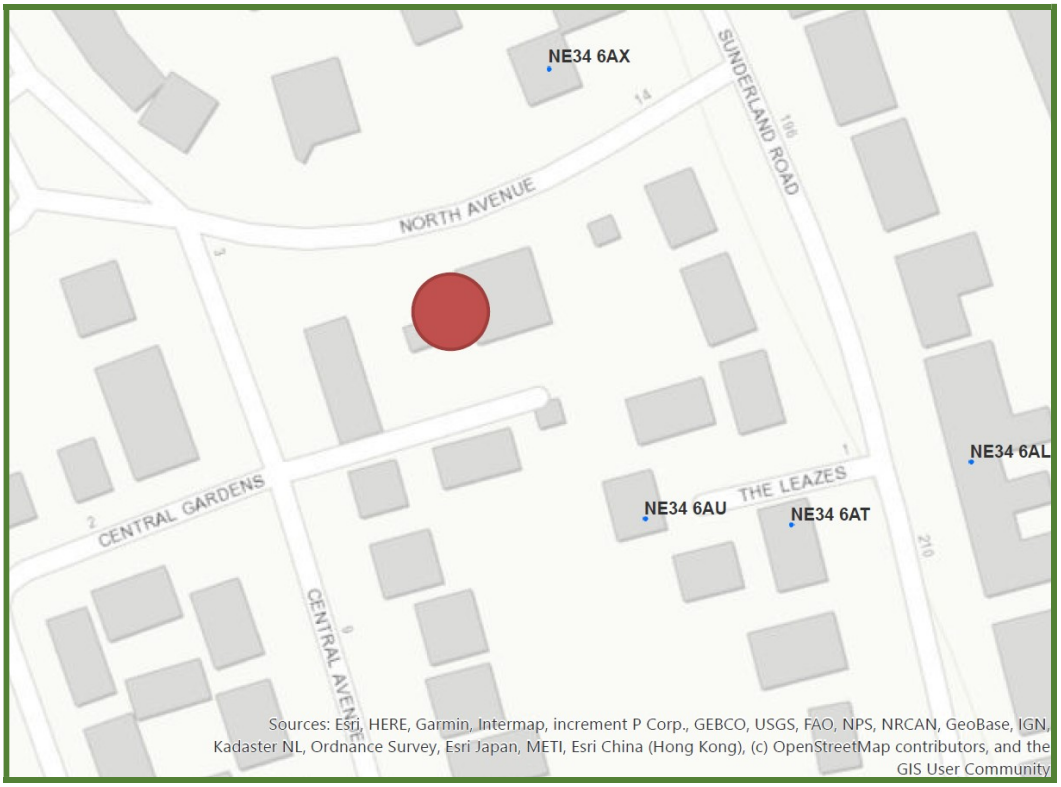
1.4. All observations have been made from ground level without detailed inspection. Some measurements may have been estimated.

1.5. Woodsman were provided with a site plan of the area with tree locations marked on. An Arboricultural Constraints Plan (ACP) and Tree Protection Plan (TPP) have been produced to accompany this report. Tree locations and protective measures should be referenced to these plans.

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2. Site Details

2.1. Location: 7 North Avenue, Harton, South Shields, NE34 6AX.



2.2. Site Description: The site is a semi-detached domestic residence with gardens and outbuildings.

2.3. Site Visit Details: The site was surveyed on the 25th of November 2019 during calm clear weather conditions.

2.4. There are twenty-two significant individual trees and some minor hedge and shrub groups within influence of the site. Small trees below 150mm in diameter at 1.5m in height from ground level have not been surveyed in detail and are classified as low retention value as per BS5837 guidelines.

2.5. The trees have had no significant recent management.

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3. Statutory Tree Protection

3.1. Trees may be legally protected. Tree protection can include Tree Preservation Orders (TPOs) or Conservation Area status. The felling of large quantities of timber may also require a felling licence.

3.2. A formal search into the statutory protection of the sites trees has not been carried out as part of this survey and report. Statutory protection of trees can include Tree Preservation Orders (TPOs) and Conservation area status.

3.3. Large penalties may be enforced for illegally carrying out works on protected trees. It is therefore advised that clarification of protection status be sought from the local planning authority prior to any tree works being carried out on site. Where appropriate permission for works must be applied for.

3.4. Some exemptions to the above may apply such as the removal of trees where full planning permission has been granted where new buildings occupy the space where the protected trees lie.

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4. Summary of Findings

4.1. There are twenty-two significant individual trees and some minor hedge and shrub groups within influence of the site. Small trees below 150mm in diameter at 1.5m in height from ground level have not been surveyed in detail and are classified as low retention value as per BS5837 guidelines.

4.2. The trees have had no significant recent management.

4.3. Collectively the trees provide the site with some amenity and screening. Some of the trees surveyed are beyond the boundaries of the site.

4.4. The proposed development will require the removal of two trees neither of which are of high retention value.

4.5. No groundworks or building works are scheduled near retained trees within Root Protection Areas (RPAs). No special construction techniques are therefore required.

4.6. Providing that appropriate protective measures and construction techniques are enforced during development the trees on site can be retained and should provide amenity benefits for the site into the near future.

4.7. The development should not have any major impact on the sites tree stock.

4.8. Retained trees should not conflict with site usage.

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5. Arboricultural Impact Assessment

5.1. The proposed development will require the removal of two trees neither of which are of high retention value. Both of these (T1 and T2) are large growing trees unsuitable for long term retention in their current setting.

5.2. No groundworks or building works are scheduled near retained trees within Root Protection Areas (RPAs). No special construction techniques are therefore required.

5.3. Providing that appropriate protective measures and construction techniques are enforced during development the trees on site can be retained and should provide amenity benefits for the site into the near future.

5.4. Some additional tree works recommendations have been made which are unrelated to the proposed development works.

5.5. The development should not have any major impact on the sites tree stock.

5.6. Retained trees should not conflict with site usage.

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6. Arboricultural Method Statement

6.1. The retained trees will need protection for roots trunks and branches during demolition and construction. The trees will be protected by erecting barrier fencing as depicted on the Tree Protection Plan.

6.2. Aerial Protection:

Arial protection should take the form of barrier fencing constructed as per BS5837 Guidelines. Alternative adequate construction methods may be allowed with prior approval.

6.3. Construction of Protective Fencing

Barriers should consist of a scaffold framework in accordance with BS 5837:2012 *Trees in relation to construction - Recommendations*; comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld-mesh panels should be securely fixed with wire or scaffold clamps. Weld-mesh panels on rubber or concrete feet are not resistant to impact and should not be used unless they are effectively pinned down and braced. The use of any alternative method of fencing should only be allowed following prior approval from the site Arboricultural Consultant or the Local Planning Authority.
NOTE: The above is preferred because it is readily available, resistant to impact, can be re-used and enables inspection of the protected area.

6.3.1. Protective fencing should enclose tree canopies in all areas where groundworks are not required (other than where canopies extend over parking and access routes).

6.3.2. The fencing will remain in place until completion of the development and then only removed with the consent of the local planning authority to permit completion of the scheme.

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6.3.3. Other than works detailed within this method statement or approved in writing by the local planning authority, no works including storage or dumping of materials shall take place within the Construction Exclusion Zones (CEZs) as defined by the protective fencing.

6.3.4. Protective Fencing Minimum Distances - The tree data table gives minimum distances from the trunk to protective fencing for retained trees. Wherever possible fencing beyond these distances is desirable and fencing should enclose tree canopies unless access beneath the canopy is necessary.

6.4. Construction Exclusion Zones

6.4.1. No works access should be allowed into the CEZs during the development phase. No storage of any building materials or any other materials should be allowed within the CEZs.

6.4.2. Once the exclusion zones have been protected by barriers and/or ground protection, construction work can commence. All weather notices should be erected on the barrier with words such as: “Construction Exclusion Zone — Keep out”.

6.4.3. In addition, the following should be addressed or avoided.

A. Care should be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without contacting retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant near trees should be conducted under the supervision of a Banksman to ensure that adequate clearance from trees is maintained always. In some circumstances, it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning.

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B. Material which will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, should not be discharged within 10 m of a tree stem.

C. Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches of trunk. This will depend on the size of the fire and the wind direction.

D. Notice boards, telephone cables or other services should not be attached to any part of the trees.

E. It is essential that allowance should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees. (Para BS5837)

6.5. Special Construction Techniques

6.5.1. No groundworks or building works including resurfacing or /foundation construction are scheduled near retained trees within Root Protection Areas (RPAs). No special construction techniques are therefore required.

6.6. Installation of Underground Utilities

6.6.1. Woodsman are not aware of the need to install any underground utility service runs within root protection areas.

6.7. Tree Works

6.7.1. All tree pruning, and removal works must conform strictly to BS3998 (*Recommendations for Tree Works) and* must use target pruning in accordance with best practice.

6.7.2. Some tree works recommendations have been made which do not relate directly to the proposed development and *although this/these operation* is *recommended they need* not necessarily be carried out to

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allow development to proceed. These operations are therefore listed in the tree data table but not in the below Schedule of Arboricultural Works.

6.7.3. Schedule of Arboricultural Works

1. Provide site managers with a copy of Arboricultural report.
2. Remove T1 and T2.
3. Install protective fencing including information signs.
4. Tree Protection Plan to be mounted in works cabins.
5. Brief all site staff regarding protective measures (on-going).
6. Construction Phase – including all further construction and landscaping works.
7. De-install protective fencing – only once all other development activity is completed.
8. Re-assess site trees for general condition possible damage and remedial works requirements.
9. Completion.

All staff on site should be briefed regarding the protective measures to be enforced. Construction should not proceed prior to the installation of the protective measures and these should remain in place for the entire duration of the construction phase. Only once the construction phase is completed in its entirety should the protective fencing be removed.

6.8. Arboricultural Supervision

6.8.1. Tree protection measures on this site are relatively straightforward and special construction techniques are not required. Ongoing arboricultural supervision is therefore not considered necessary; provided that protection measures are correctly installed and remain in situ throughout the duration of the development works or unless the method statement is not adhered to and/or damage occurs to the retained trees.

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6.8.2. Any deviation from the prescribed method statement or the occurrence of any unforeseen damage to the site's trees must be immediately reported to the Arboricultural Consultant. All works on site must be halted immediately. The Consultant will make a site visit to assess the extent of the damage or deviation from the prescribed method statement and any resulting works required. The local authority planning department will also be immediately informed, and the Consultant will provide them with a written assessment of any such damage or deviation from the prescribed method statement.

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7. Other Arboricultural Site Factors

7.1. Hazard Trees

Some trees including T15 are in very poor structural condition and require removal or remedial pruning to maintain them in an acceptable condition. This does not relate directly to the proposed development.

7.2. Recent Management

The trees have had no significant recent management.

7.3. Future Management

Some regular maintenance may be required to maintain trees in a safe condition.

7.4. Protected Wildlife

7.4.1. It is an offence under the Wildlife and Countryside Act 1981 (WCA and amendments) and the EU Habitats Directive to disturb and or destroy the nests of bats, birds, and other protected wildlife. Birds are protected by; The Wildlife and Countryside Act 1981and The Countryside (or CROW) Act 2000. Bats are protected by; The Wildlife & Countryside Act 1981 (WCA) and the Conservation of Habitats and Species Regulations 2010

7.4.2. UK bats and their roosts are protected by law. You will be committing a criminal offence if you:

- Deliberately capture, injure, or kill a bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat

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- Intentionally or recklessly obstruct access to a bat roost
- Penalties on conviction - the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

7.4.3. When carrying out tree works contractor must carry out a 'bats in trees risk assessment', which can be obtained from the Arboricultural Association or the Bat Conservation Trust. If evidence of bats is found work must stop immediately and Natural England Batline contacted. A further inspection may well be required by a licensed bat handler or roost visitor.

7.4.4. No visual signs were found to indicate the presence of bats in the surveyed trees although several trees within the study area display characteristics found favourable to bats and as such caution must be exercised.

7.4.5. For birds, as with bats there is an obligation to carry out visual checks prior to works commencing. Where possible tree works should be carried out to avoid the bird nesting season.

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Appendices

I. Notes on Tree Assessment

The trees on site have been assessed and categorised as follows according to BS 5837 (2012) *Trees in Relation to Construction Sites: Recommendations*.

Category U Trees:

Trees unsuitable for retention. Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Category C Trees:

Those of low quality and value: Currently in adequate condition to remain until new planting could be established or young trees with a stem diameter below 150mm. These trees although of some value should not be allowed to affect the design of the site layout as they can easily be replaced.

Category B Trees:

Those of moderate quality and value: those in such a condition as to make a significant contribution for a minimum of twenty years. Site design should where practicable retain these specimens.

Category A Trees:

Those of high quality and value**:** in such a condition, as to be able to make a substantial contribution for a minimum of forty years. Site design should seek to retain these trees wherever it is practicable to do so.

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II. Tree Details

Tree Table Details

- **Tree number:** An individual identifying number – usually relating to tree tag.
- **TPO:** Detail of Tree Preservation Order tree or group number
- **Common Name (Botanical Name)** Species identification is based on visual field observations. (Botanical name in brackets)
- **Retention Category:** For Retention category grading see cascade chart
- **Age Category:** Either an estimate (or statement if accurately known) of the age of the tree, classified as:
    - **Y** = Young tree, established tree usually up to one third of expected ultimate height & spread
    - **MA** = middle aged, usually between one third and two thirds of ultimate height &
    - spread
    - **M** = Mature, almost at full height but still increasing in girth & spread
    - **OM** = Over mature, grown to full size and becoming senescent,
    - **V** = Veteran tree, individuals surviving beyond the typical age range for the species
- **Stem Diameter:** Trunk diameter measured at 1.5 metres from ground level and recorded in millimetres. (Number of stems – MS = Multi stemmed)
- **Height:** Height estimated in metres. (Lower crown height - Height in metres of crown clearance above adjacent ground level)
- **Crown Spread:** Measurement of canopy from the trunk in metres - North, South, East, and West
- **Useful Life Expectancy:** Estimated Safe Useful Life Expectancy (SULE). Short: 0 – 10years Medium: 10– 20 Years, Intermediate: 20-40, Long: 40 + years.
- **Condition:** Physiological Condition;
    - Good = Healthy tree with good vitality.
    - Fair = Moderate health and vitality normal or slightly less for species and age,
    - Poor = Poor shape or form - signs of decline in crown, may have structural weakness.

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    - Dead = dead or dying tree
- **Comments:** Notes on tree condition and other points of interest.
- **Recommendations:** Management recommendations – actions required.
- **Works Priority:**
    - A - Works to achieve safety or to facilitate the development.
    - B - Works to achieve higher levels of arboricultural management.
    - C - To improve the aesthetic appearance.
- **Root Protection Area (Radius) m:** The distance at which the protective barrier should be erected measured in a radius.
- **Root Protection Area m2:** The area of RPA required.
- **Root Protection Area Square (m):** The RPA area as a square.
- **Bat Roost Potential:**
    - 0 - None – No significant bat roost features.
    - 1 - Low – Only minor significant bat roost features.
    - 2 - Moderate – Some notable bat roost features.
    - 3 - High – Significant or multiple bat roost features.
    - 4 - Confirmed – Confirmed bat roost.
- **Potential for Future Growth:** H – High potential for future growth - A substantial increase in tree dimensions can be expected. M – Medium potential for future growth - A significant increase in tree dimensions can be expected. L – Low potential for future growth - A small increase in tree diminutions can be expected. N – No potential for future growth - Tree considered to be at full size, or only very slow growth anticipated.
- **Pruning:** Removal of living or dead parts of a tree.
- **Crown Cleaning:** The removal of dead, dying or diseased branch-wood, broken or crossing branches or stubs left from previous tree surgery operations unwanted objects, ivy, other climbing plants, and general debris/rubbish.
- **Deadwood Removal:** Removal of significant dead and dying branches and limbs from the tree.
- **Crown Lifting:** Removal of all growth and branches below the height specified.
- **Crown Reduction:** Reduction of the complete outline of the canopy, pruning to appropriate growth points and leaving a natural silhouette.

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Tag	TPO	Name (Botanical Name)	Retention Category	Age Category	Mean Diameter - mm (No of Stems)	Height -m (Lower Crown Height) (Significant Branch)	Condition	Useful Life Expectancy	North	South	East	West	Comments	Recommendations	Works Priority	Root Protection Area – Radius (m)	Root Protection Area – Area) (m2)	Likelihood of Protected Species Occupancy	Growth Potential
T1		Cedrus deodora (Deodar)	B2	EM	400 (1)	11 (0) (0.5)	Good	20+	4	2	4	4		Remove	A Safety Development	4.8	72.39	1 Low	H
T2		Cedrus libani atlantica 'Glauca' (Atlant	B2	EM	450 (1)	11 (0) (1)	Good	40+	4	4	4	4		Remove	A Safety Development	5.4	91.62	1 Low	H
T3		X Cupressocyparis leylandii (Leyland Cyp	C2	EM	559 (3)	11 (1) (1)	Fair	20+	3	3	3	3			None	6.71	141.47	1 Low	H
T4		Acer pseudoplatanus (Sycamore)	B2	EM	50 0(1)	13 (4) (4)	Good	40+	4	4	4	4	Historically pollarded.		None	6	113.11	1 Low	H
T5		Acer pseudoplatanus (Sycamore)	B2	EM	500 (1)	13 (4) (4)	Good	40+	4	5	4	5	Historically crown reduced.		None	6	113.11	1 Low	H
T6		Prunus avium (Wild Cherry)	B2	M	400 (1)	7 (1.5) (2)	Good	20+	4	3	6	4			None	4.8	72.39	1 Low	M
T7		Fagus sylvatica (Beech)	B2	M	500 (1)	10.5 (2) (4)	Good	40+	4	5	4	5			None	6	113.11	1 Low	H
T8		Acer pseudoplatanus (Sycamore)	B2	M	500 (1)	12.5 (5) (5)	Fair	20+	5	4	4	4	Low vitality.		None	6	113.11	1 Low	M
T9		X Cupressocyparis leylandii (Leyland Cyp	C2	SM	400 (1)	8 (2)	Fair	20+	3	3	3	3			None	4.8	72.39	1 Low	H
T10		X Cupressocyparis leylandii (Leyland Cyp	C2	SM	300 (1)	8 (0.5)	Fair	20+	3	3	3	3			None	3.6	40.72	1 Low	H

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T11		X Cupressocyparis leylandii (Leyland Cyp	C2	SM	400 (1)	8 (0.5)	Fair	20+	3	3	3	3			None	4.8	72.39	1 Low	H
T12		Cedrus deodora (Deodar)	C2	SM	250 (1)	8 (1.5) (2)	Fair	20+	2.5	2.5	2.5	2.5			None	3	28.28	1 Low	M
T13		Chamaecyparis lawsoniana (Lawson Cypress	C2	SM	250 (1)	9 (3)	Fair	20+	3	3	3	3			None	3	28.28	1 Low	M
T14		Pinus pinea (Stone Pine)	B2	EM	250 (1)	9 (3)	Good	20+	1	3	3	2			None	3	28.28	1 Low	M
T15		Acer pseudoplatanus (Sycamore)	U	M	500 (1)	13 (7)	Poor	<10	4	4	4	4	Low vitality. Declining. Ivy on tree. Unable to inspect stem due to Ivy. Dieback in crown. Low bud/leaf density.	Remove tree and root.	A Safety Development	6	113.11	1 Low	L
T16		Pinus pinea (Stone Pine)	B2	EM	250 (1)	7 (2)	Fair	20+	3	3	3	3			None	3	28.28	1 Low	M
T17		Prunus avium (Wild Cherry)	C2	EM	300 (1)	10 (2)	Poor	10+	3	3	3	3	Low vitality. Declining. Dieback in crown. Major deadwood in crown.	Remove tree and root.	A Safety Development	3.6	40.72	0 None	M
T18		Prunus avium (Wild Cherry)	C2	Y	150 (1)	7 (2)	Good	40+	3	3	3	3			None	1.8	10.18	1 Low	H
T19		Acer pseudoplatanus (Sycamore)	B2	M	450 (1)	14 (5)	Fair	20+	4	2	4	3			None	5.4	91.62	1 Low	M
T20		Acer pseudoplatanus (Sycamore)	B2	M	450 (1)	14 (5)	Fair	20+	6	0	3	3			None	5.4	91.62	1 Low	M
T21		Acer pseudoplatanus (Sycamore)	B2	M	450 (1)	14 (5)	Fair	20+	6	0	3	3			None	5.4	91.62	1 Low	M
T22		Acer pseudoplatanus (Sycamore)	B2	EM	300 (1)	12 (6)	Fair	20+	5	2	3	3			A Safety Development	3.6	40.72	1 Low	M
H1		X Cupressocyparis leylandii (Leyland Cypress)	C2	EM															
R1		Chamaecyparis lawsoniana (Lawson Cypress																	

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R2		Chamaecyparis lawsoniana (Lawson Cypress																	
S1		Sambucus nigra (Elder)	C2	M	250(1)	6	Fair	20+	3	3	3	3			None	3	28.28	1 Low	L

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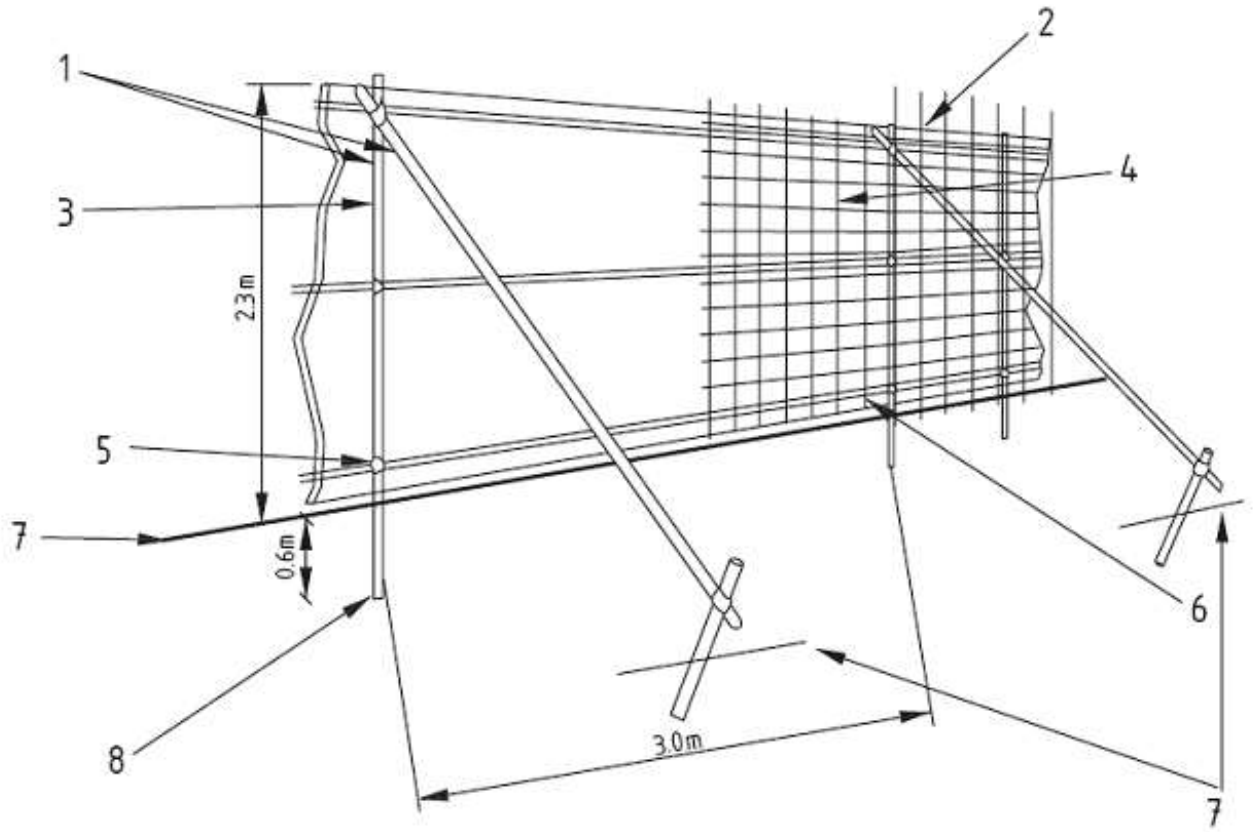
III. Cascade Chart for Tree Quality Assessment

Category and definition	Criteria			Identification on plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	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 category U trees (e.g. 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, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve;*			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 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 semiformal arboricultural features (e.g. trees of moderate quality within an avenue that includes better category A 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 150mm	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 Category C trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.			

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IV. Protective Fencing Details



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

6 Wire twisted and secured on inside face of fencing to avoid easy dismantling

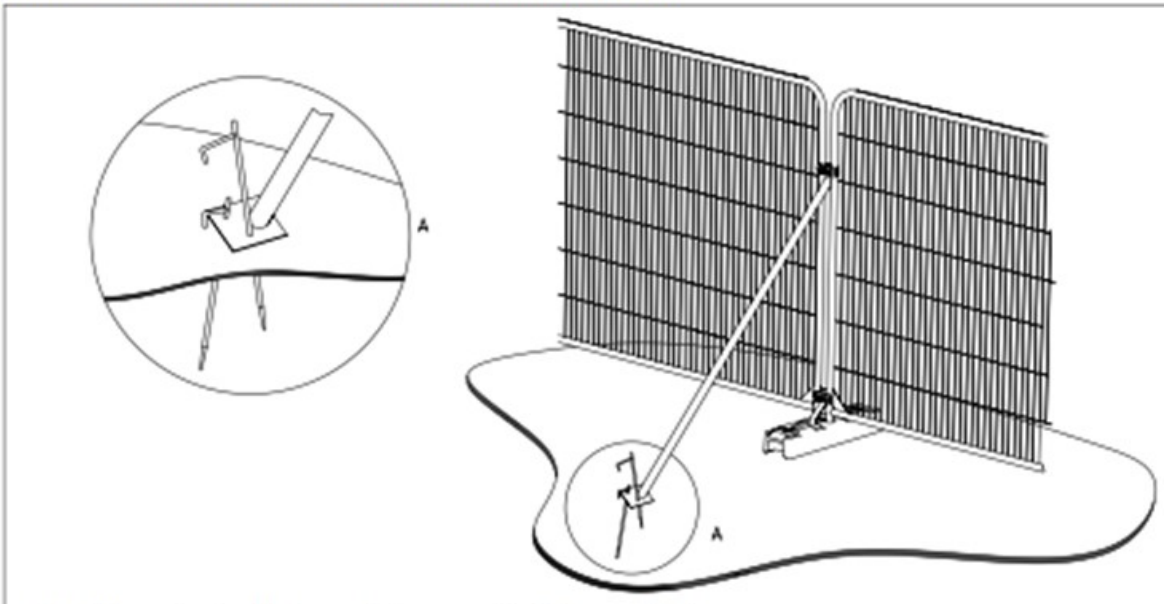
7 Ground level

8 Approx. 0.6 m driven into the ground

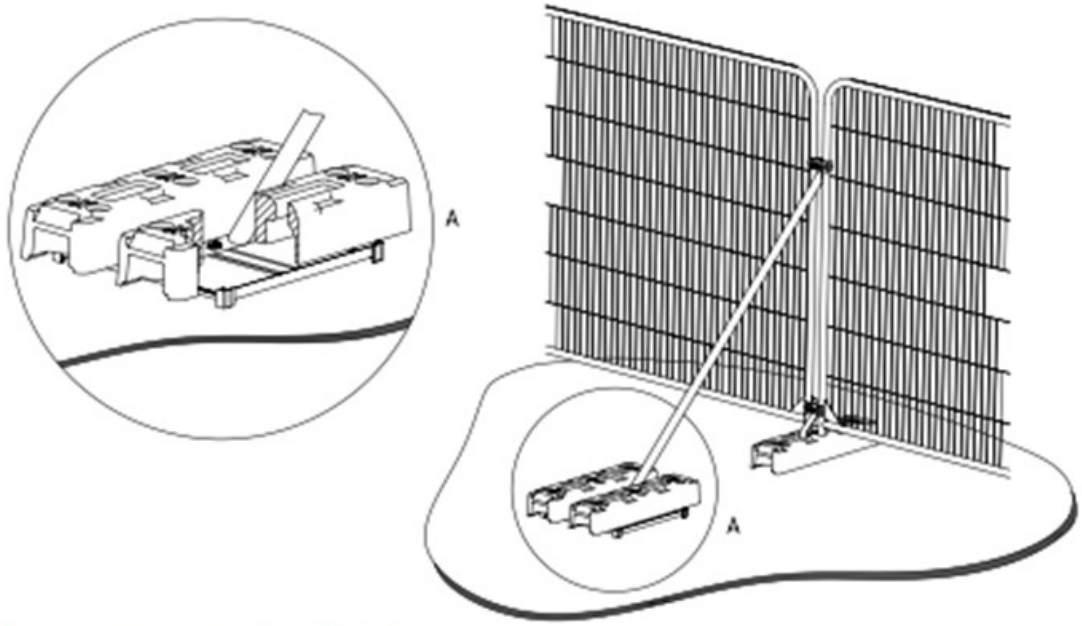
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V. Protective Fencing with Above Ground Stabilization

Figure 3 **Examples of above-ground stabilizing systems**



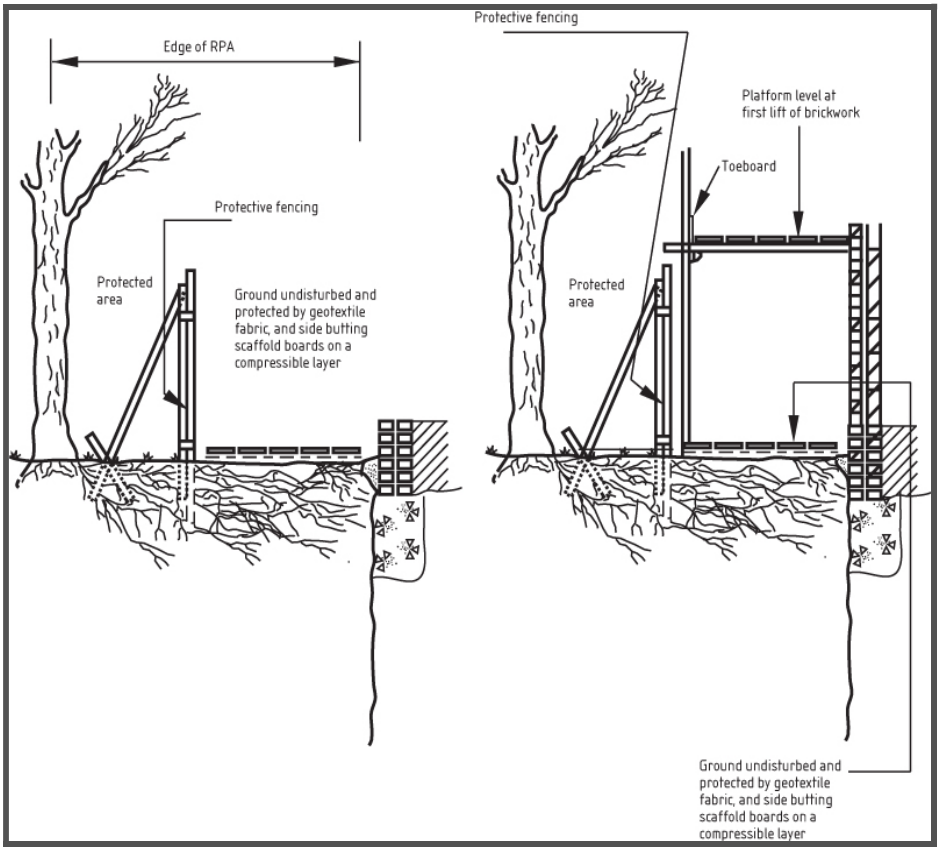
a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

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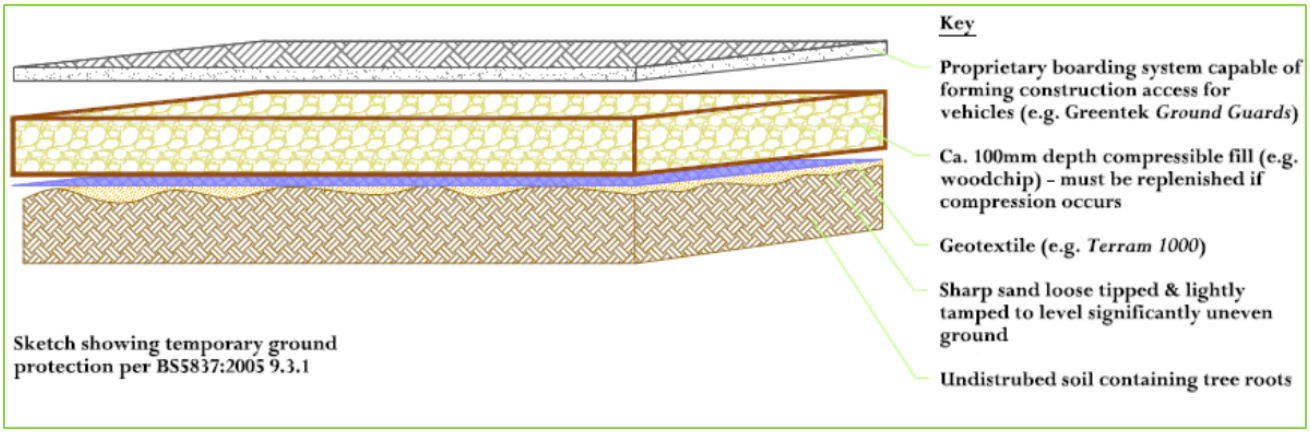
VI. Erection of Scaffolding Within Root Protection Areas



VII. Signs for Placement on Protective Fencing



VIII. Temporary Ground Protection Layers



IX. Scope of Report

This report has been produced to fulfil planning requirements and to ensure that best practice procedures are enforced prior to construction design in accordance with BS 5837 (2012) *Trees in relation to construction: - Recommendations.*

Tree conditions and amenity values have been assessed with regards to their suitability for retention during and following the proposed construction in accordance with the BS: 5837. (2012)

a. Limitations

This report has not been designed as a hazard assessment or safety report and should not be used as such. As such only major visual tree defects are commented upon where appropriate.

This report makes no comment on any trees ability to cause either direct or indirect damage to buildings, walkways, and other utilities other than where direct pressure damage is immediately and obviously foreseeable.

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Trees are dynamic and changing structures and this report comments on tree condition as assessed on the day of surveying.

Please note that where trees near are selectively removed other adjacent specimens are initially more prone to failure due to increased wind loads. Given time healthy trees can adapt to this increased wind stress.

Further to this report it is recommended that all trees in areas where failure may result in significant risk of damage to people or property be assessed for hazard on an annual basis to fulfil the owner's duty of care.

b. Survey Methodology

All trees were assessed from ground level only using visual assessment techniques. Heights and crown spreads have been measured using a laser hypsometer and tree diameters have been measured using a girth tape at 1.5m or where multi-stemmed immediately above the root flair as prescribed in the BS: 5837: 2012 *Trees in relation to construction - Recommendations.* No further inspection beyond this visual assessment has been carried out. Some measurements may have been estimated.