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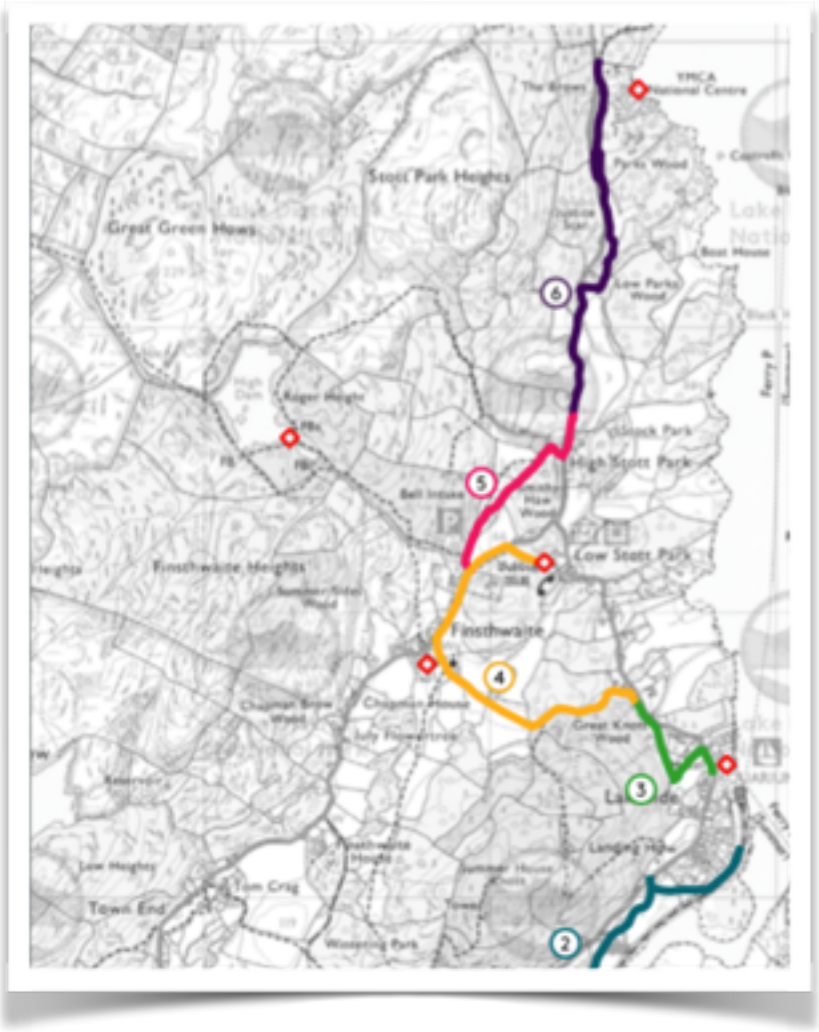

Arboricultural Implication Assessment (AIA)

Prepared by

Arbconsultants Ltd

Address	Southern Windermere Trail		
Client	Lake District National Parks Authority	**Client Ref**	Mr B Wilkinson
ARB Ref	K0317 / 4992	**Consultant**	Christopher Raper
Report Date	26/5/201	**Quality Checked**	JG
Technical Arboriculture Approved			

Consultants in Urban Forestry, Arboriculture and Environmental Sciences

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1. Scope and Limitations of Report

1.1 This report has been commissioned by Mr Bruce Wilkinson of the Lake District National Parks Authority and the scope of the report reflects his instructions.

1.2 The scope of the report is limited to a visual inspection of the trees (VTA Visual Tree Assessment). Our instruction is based upon a partial walkthrough of the proposed route. We have used the supplied topographic plans to plot trees but if you believe any trees have been missed or are wrongly identified we would ask that you would let us know so that they may be included in future surveys.

1.3 This report was prepared as a report of work instructed by client (as specified). Neither Arbconsultants Ltd nor any associated company, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the report and its findings. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favouring by Arbconsultants Ltd or any associated company. The views and opinions of authors expressed herein do not necessarily state or reflect those of Arbconsultants Ltd or any associated company. The content, layout and any supporting digital files associated with this report are subject to copyright owned by Arbconsultants Ltd. Exceptions to this are present where that copyright has been legally assigned to us by another party/ organisation. In addition Arbconsultants Ltd may utilise content generated under license. Reproduction, scanning, copying or distribution of this report in any form is prohibited without prior written agreement. Neither Arbconsultants Ltd nor any of its associated companies, sub-contractors or suppliers will be responsible or liable for any claim of loss or damage resulting from the third party use of the information contained within this report.

1.4 The brief is to appraise the trees in relation to the proposed development of the site in accordance with British Standard 5837:2012 'Trees in relation to Construction – Recommendations'. To prepare a clear set of report recommendations with supporting plans and data to facilitate consideration of the Arboricultural implications by the Local Planning Authority.

1.5 To consider the development proposals and identify areas where there are arboricultural issues and to recommend possible solutions.

1.6 To consider additional information supplied and identify arboricultural issues arising from this information and to recommend possible solutions.

1.7 This report is not a Tree Risk Management or a Hazard Analysis Report and its use as such is invalid.

1.8 The report refers to the condition of the trees and an assessment of the site on the day that the evaluation was undertaken. All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur, but is not limited to biological and non-biological factors as well as mechanical/ physical changes to conditions in the proximity of the tree. Trees should be inspected at intervals relative to identified site risks and in accordance with best Industry practice and guidance. Arbconsultants Ltd can provide further information on this matter if required.

1.9 Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works are based on the assumption that planning is approved, no tree works should be undertaken prior to determination of this application without up to date confirmation of the Tree Preservation Order / Conservation Area Status of the vegetation. All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species. Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any detrimental impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work. Due to the changing nature of trees and their site circumstances this report and any recommendations made are limited to a 1 year period. Any alteration to the application site or any development proposals could change the current circumstances and may invalidate this report and any recommendations made. Should this be the case this report will require revision to reflect the development proposals.

1.10 Trees are dynamic structures that can never be guaranteed 100% safe; even those in good condition can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.

1.11 A lack of recommended work does not imply that a tree is safe and likewise it should not be inferred that a tree will be made safe following the completion of any recommended work.

1.12 Trees dimensions were measured using a combination of a Haglof digital Clinometer, a Leica Disto Laser Rangefinder and a Fujikura Diameter tape. All instruments were used in accordance with appropriate user guides.

1.13 Decay detection if requested and used is undertaken using an IML Resistograph.

1.14 All data provided by the testing equipment has been verified according to the equipment manufacturer's instructions.

1.15 No soil samples were taken and no soils analysis was undertaken. Clay soils are prone to compaction during development with damage to soil structure potentially having a serious impact on tree health. The design of foundations near problematic tree species will also need to take into consideration subsidence risk. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

1.16 Any legal description or information given to Arbconsultants Ltd is believed to be accurate.

1.17 Where solutions to arboricultural problems are specified which require the usage of a third party product e.g. no dig construction. No liability is assumed for the performance or suitability of the product and specialist advice as to the suitability or installation of the product should be sought from the manufacturer or other specialist.

1.18 This report is primarily an arboricultural report. Whilst comments relating to matters involving built structures or soil data may appear, any opinion thus expressed should be viewed as qualified, and confirmation from an appropriately qualified professional should be sought. Such points are usually clearly identified within the body of the report. It is not a full safety survey or subsidence risk assessment survey. These services can be provided but a further fee would be payable. Where matters of tree condition with a safety implication are noted during a survey they will of course appear in the report. No responsibility is assumed by Arbconsultants Ltd for legal matters that may arise from this report, and the Consultant shall not be required to give testimony or to attend court unless additional contractual arrangements are made.

1.19 Any alteration or deletion from this report shall invalidate it as a whole.

2. Qualifications and Experience

2.1 My name is Christopher Raper and I am a Consultant practising through Arbconsultants Limited, which is an Arboricultural Consultancy Practice based at Myerscough College, Preston, Lancashire. The Practice Specialises in Arboriculture, Urban Forestry, Biological Sciences and Project Management.

2.2 I am a Consultant specialising in tree failure, hazard evaluation, risk assessment related to trees, planning and development where trees are involved and insurance claims where tree failure is involved and/or building damage occurs which may be attributed to the activity of trees. I have received extensive training in relation to trees, clay soils and subsidence of low-rise buildings. I am a specialist in the field of trees/vegetation and special construction engineering methodologies. I am familiar with different Tree Hazard Evaluation systems and conversant in Visual Tree Assessments (VTA) techniques.

2.3 I have a 1st class honours degree in Arboriculture awarded by Myerscough College in conjunction with the University of Central Lancashire. I have over 10 years experience in the Arboricultural industry ranging from Tree Officer with a Local Authority through to Senior Consulting level with an Arboricultural Consultancy. I have provided guest lectures on Arboricultural Consultancy to the MSc course on Arboriculture and Urban Forestry run by the University of Central Lancashire and Myerscough College. I have attended formal and informal public inquiries and have supplied consultancy advice as part of design, project management and consultant/legal teams.

3. Summary

3.1 The survey was carried along the proposed route of the Southern Windermere Trail specifically at the points as directed by Mr Bruce Wilkinson. (Appendix 1 Location). The project is aimed at improving access to the southern side of Lake Windermere.

3.2 We have not been supplied with detailed drawings showing foundation types therefore we have made certain assumptions and have supplied method - statements that will cover most contingencies whereby the development may impact upon the trees. If necessary these method statements can be modified once full technical drawings have been produced.

4. BS: 5837:2012 'Trees in relation to construction – Recommendations'

4.1 The trees on site have been surveyed in accordance with BS5837:2012 'Trees in relation to construction – Recommendations'.

4.2 The survey lists all the trees or groups of trees (excluding those trees already scheduled for removal) that may be impacted upon by the development and will include the following information.

- Reference number (to be recorded on the tree survey plan)
- Species
- Height in metres.
- Stem diameter at 1.5m above adjacent ground level (on sloping ground to be taken on the upslope side of the tree base) as per annex D of the Standard or

  a) For trees with two to five stems, the combined stem diameter should be calculated as follows: $\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 + (\text{stem diameter 5})^2}$

  b) For trees with more than five stems (not illustrated in Annex C), the combined stem diameter should be calculated as follows: $\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$

- Branch spread in meters taken at the four cardinal points to derive an accurate representation of the crown (to be recorded on the tree survey plan).
- Existing height above ground level of first significant branch and direction of growth (e.g. 2.4-N) of the canopy,to inform on ground clearance, crown/stem ratio and shading;
- Life stage (e.g. young, semi-mature, early mature, mature, over-mature).
- General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay and physical defect), and/or preliminary management recommendations;
- Estimated remaining contribution, in years (<10, 10+, 20+, 40+).
- Category U or A to C grading (see 4.5 and Tables 1 and 2), to be recorded on the tree survey plan.

4.3 The survey is attached at **Appendix 2** of this report.

4.4 The British Standard at 5.5.6 states that the following factors need to be considered -

a) **site construction access;** this will be via the proposed trail.

b) **the intensity and nature of the construction activity;** the construction will be of medium intensity. The site compounds should be outside all root protection areas and no storage of materials will be within any root protection areas..

c) **contractors' car parking;** Contractors will be expected to use off-street parking spaces that are adjacent to the development.

d) **phasing of construction works;** all tree works will be completed and ground protection will be in place prior to any construction work -

5.0 Grading category and Recommended Tree Works

5.1 Trees that have the potential to be affected by the development have been classified according to BS5837:2012.

5.2 Category "A" Trees are classified as high quality and value in such condition as to make a substantial contribution for a minimum of 40 years.

5.3 Category "B" i.e. those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested). Category B Trees are defined as 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).

5.4 Trees that have been classified as Category "C" i.e. of lower quality and value; currently in adequate condition which could if necessary remain until new planting is established, trees present in groups or woodlands, but without this conferring on them significantly greater landscape value.

5.5 Category "C" trees may **not** usually be retained where they would impose a significant constraint on development.

5.6 Category "U" trees are 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. Examples include…

- 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 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.

5.7 All trees that we inspected that we regard as category U whether or not the proposed footpath passes close to them have been included in our drawings (appendices 3 and 4). In each of the Appendices 5 we have removed these trees from the plans but it is a decision for the Lake District National Parks Authority to make as to whether trees distal to the proposed footpath should be felled for health and safety reasons or whether they could be left to provide habitat within the woodlands.

5.8 It is recommended that any tree works are undertaken prior to development commencement.

5.9 In total 565 standing trees and groups that may be impacted upon by the development have been surveyed.

5.10 Permissions: Under no circumstances is any tree work to be instigated without having first checked with the Local Planning Authority that no statutory controls apply in respect of the trees. All tree workers shall have the relevant NPTC qualifications and shall submit completed risk assessments to the project manager prior to commencement of tree-work.

5.11 All pruning shall be done in accordance with the principles of 'Natural Target Pruning' and in accordance with the current relevant British Standard, **BS3998: 2010** 'Recommendations for Tree Work'. All pruned sections shall be lowered to the ground in a controlled manner such that no damage is done to other trees or vegetation and structures beneath. The implication of tree works must have regard to the presence of any nesting Birds or Bats and their roosts, which are protected under the Wildlife and Countryside Act 1981. We have listed in Appendix 2 the bat roost potential for each tree surveyed.

6.0 Tree Constraints – Calculated Root Protection Area (RPA)

6.1 BS5837 (2012) requires that the root protection area is calculated for each of the retained trees on the development. The root protection area is the minimum area in m^2 which should be left undisturbed around each retained tree. The RPA should be calculated using Annex D of the Standard as an area equivalent to a circle with a radius 12 times the diameter calculated for the stem of the tree.

6.2 The standard calculated RPA's and the protection zone radii are detailed at Appendix 6 of this report.

6.3 The RPA, for each tree as determined in Table 2 of the standard, should be plotted on the **Tree Constraints Plan** (Appendices 4) taking full account of the following factors, as assessed by an arboriculturalist, which may change its shape but not reduce its area whilst still providing adequate protection for the root system. As virtually all the trees are either in open countryside or woodland that standard radii is therefore appropriate.

a) The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age and condition and presence of other trees.

b) The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services).

c) The soil type and structure.

d) Topography and drainage.

7.0 Arboricultural Method Statement - Tree Protection Plan (TPP) Barriers

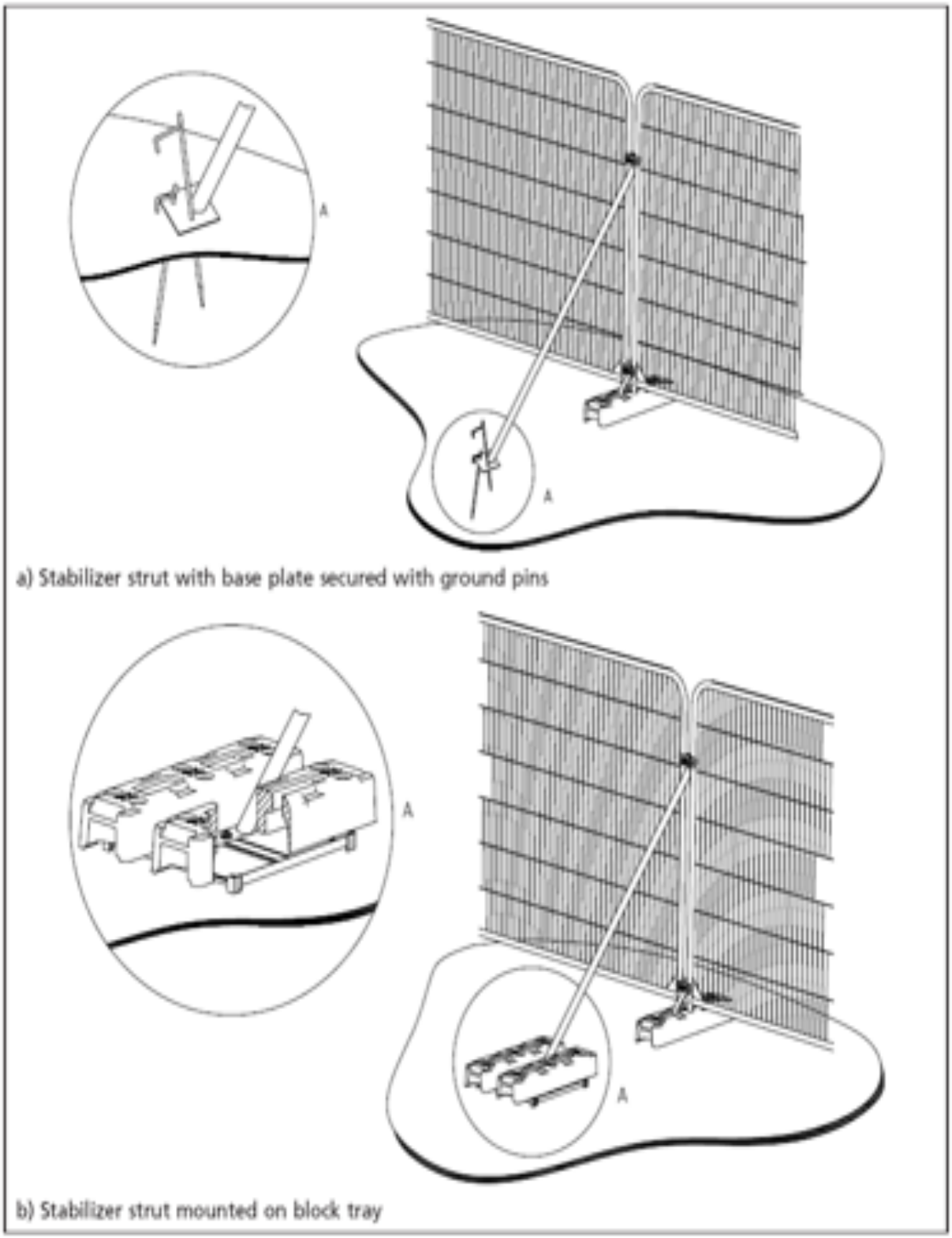
7.1 The exclusion zones (Root Protection Area) as defined in this report cannot on the whole be protected with fencing due to the topography of the proposed footpath. Where possible if fencing is to be installed then the fencing is to be strong enough to resist impacts and suitable to the degree of construction activity on the site and to be in accordance with that specified of BS5837:2012.

7.2 All possible fencing will be in place prior to any other development work (with the exception of necessary tree works) commencing on site. Such fencing will therefore be erected before any materials or machinery is brought onto site. Once erected the fences will not be moved or altered in any way without prior consultation with the Local Planning Authority other than for operations detailed in this report. If the fencing is damaged in any way it will be re-instated to its original condition before construction work can re-commence Notices will be erected on the fencing stating Protected Area – No Operations within Fenced Area. Protective fences shall be maintained in situ until all equipment, machinery and surplus materials have been removed from the site. No vehicle shall access shall be allowed within the construction frees zone. Nothing will be stored or placed in any area fenced in accordance with this condition and the ground levels within those areas shall not be altered, nor shall any excavation be made other than those detailed in this report, without the written consent of the Local Planning Authority.

7.3 The total exclusion zones are marked on the accompanying drawing in Appendix 5 (**Proposed Footpath**). British Standard 5837:2012 (Appendix 6) indicates the recommended Root Protection Areas (RPA). Specifications within BS5837-2012 inform our recommendations for the fencing type as detailed below in figure 3. As detailed in section 6.2.3.1 of the standard it is acceptable for the barriers to be set back and ground protection to be put in place.

7.4 Barriers should be fit for purpose and appropriate to the degree of activity and proximity of work to the retained trees. All protective fencing is to be constructed in accordance with BS:5837(2012) – Figure 3 specification reproduced below.

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

8.0 Arboricultural Method Statement – Demolition / Removal of existing surfaces

8.1 Extent and form of the root system

8.2 The root system is typically concentrated within the uppermost 600 mm of the soil. Within a short distance of the stem the roots are highly branched, so as to form a network of small-diameter woody roots, which typically extend radially for a distance much greater than the height of the tree, except where impeded by unfavourable conditions. All parts of this system bear a mass of fine, non-woody absorptive roots. The root system does not generally show the symmetry seen in the branch system. The development of all roots is influenced by the availability of water, nutrients, oxygen and soil penetrability. As far as these conditions allow, the root system tends to develop sufficient volume and area to provide physical stability. The uptake of water and mineral nutrients by the root system takes place via the fine roots, typically less than 0.5 mm diameter. Their survival and functioning — which are essential for the health of the tree as a whole — depend on the maintenance of favourable soil conditions. The fine roots are short-lived, with the majority dying each winter and with fresh ones developing in response to the needs of the tree. All parts of the root system, but especially the fine roots, are vulnerable to damage. Once roots are damaged, water and nutrient uptake is restricted until new ones have grown. Mature and over-mature trees respond slowly, if at all, to damage of their woody roots. The following Method Statements are supplied where a new surface is laid / old surface is removed within 5 metres of a retained tree or within a Root Protection Area. Therefore where it is intended to undertake operations within that distance precautions should be taken to maintain the condition and health of any roots that may be found by reference to:

a) Preventing physical damage to any roots that may be present during demolition or construction (such as by soil compaction or severing);

. b) Make provision for water and oxygen to reach the roots;

8.3 All plant and vehicles (quads with trailers) engaged in demolition works will either operate outside the RPA's, or will run on a temporary surface designed to protect the underlying soil structure. Where such ground protection is required, it will be installed prior to commencement of operations.

8.4 Where an existing hard surface (i.e. rock outcrop) is scheduled for removal, care will be taken not to disturb tree roots that may be present beneath it. Hand held tools or appropriate machinery will be used to remove the existing surface.

8.5 If necessary the break up of the surface (i.e. rock outcrops) within the Root Protection Zone should be carried out using low impact pneumatic equipment or by hand (Breakers attached to JCB's shall not be used). The surface shall be removed in 1 metre strips when a 1 metre strip of hard surface has been removed the area should then be covered with 100mm deep of top soil (conforming to BS3882 2007) and levelled.

8.6 Any debris that requires removal from within the root protection area shall be carried out by hand.

8.7 Any excavations which have to be undertaken beneath the surface within the root protection area will be carried out carefully using air-spade technology, avoiding

damage to the protective bark covering larger roots. Roots, whilst exposed, will be wrapped in dry, clean Hessian sacking to prevent desiccation and to protect from rapid temperature changes. where the footpath is due to be widened roots smaller than 25 mm diameter may be pruned back, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws.

8.8 Roots larger than 25 mm will only be severed following consultation with an Arboriculturist, as they may be essential to the tree's health and stability. Prior to backfilling, any Hessian wrapping will be removed and retained roots should be surrounded with sharp sand (builders' sand will not be used because of its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced. This material will be free of contaminants and other foreign objects potentially injurious to tree roots.

8.9 Arboricultural Method Statement – Ground Protection

8.10 In regard to the above, if vehicular (i.e. quads with trailers) or pedestrian access for the construction operation is required within the root protection area (RPA), the possible effects of construction activity will be addressed by ground protection..

8.11 For pedestrian movements within the RPA the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer (no fines gravel or sharp sand) laid onto a geo-textile, or supported by scaffold is proposed. No materials are to be stored within an RPA except where that storage can be accosted upon ground protection boards.

8.12 Cellular Confinement System

8.13 It is envisaged that the proposed development will require a cellular confinement construction for the trail within the root protection areas. The use of this system avoids the requirement for digging into the soil and damaging existing roots. Using this technology will avoid damaging the soil structure through compaction. Soil damage of this nature may disrupt the efficient exchange of water and gasses in and out of the soil and inhibit root growth. Mature and over-mature trees are more vulnerable to disturbance of this nature when compared to younger trees. The use of a cellular confinement system reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under pressure loads. It is therefore crucial that the area that is to be covered with a cellular confinement system is protected from the beginning of construction works.

- The surface needs to be laid on flat ground and so first any debris, mulch and vegetation will need to be removed from the soil surface. Any major protrusions such as rocks should be carefully removed. This is to be done using hand tools only. Stumps are to be excavated out to just below ground level, again, using hand tools. Undertake pruning works as required.

- Any roots which are to be left exposed for more than three hours should be covered in damp straw and/or hessian covers. Also note that if temperatures exceed 16c this time should be reduced to one hour before roots should be protected.

- No pruning of roots over a diameter of 25mm should be undertaken unless permission of the Local Authority tree officer is given. *Any damaged roots should be cleaned and pruned back to an appropriate place*

- Apply translocated herbicide to area for the proposed route and remove dead vegetation with hand tools. The existing surface and top soil is to be retained. Any voids or depressions (including those formed by stump removal) within the ground surface are to be filled with sharp sand (not builders sand) to maintain levels.

- Once the surface is flat the area must be covered with a non woven geo-textile separation filtration layer over area for driveway and hard landscape that will prevent different mineral materials mixing while allowing water to pass through. If several sheets are required ensure that they overlap by at least 30cm;

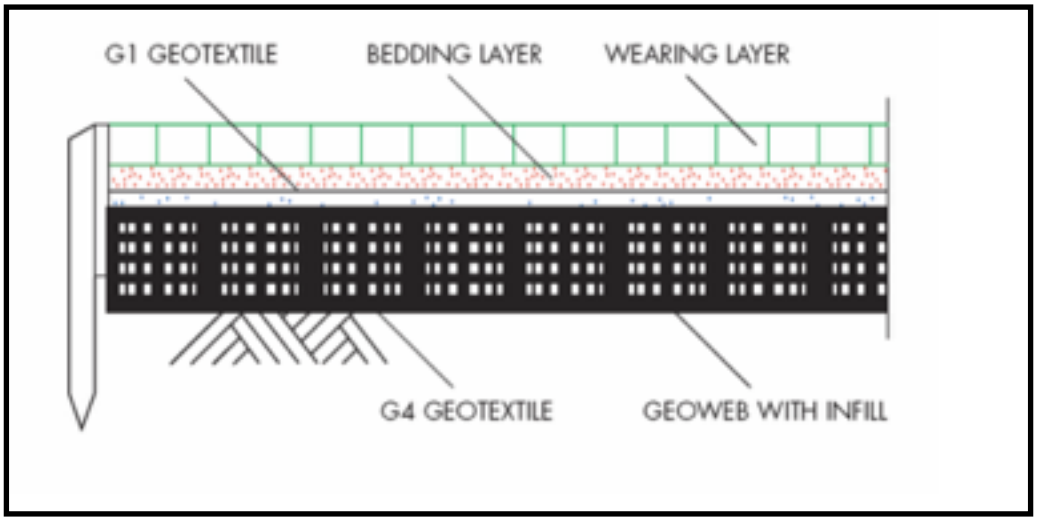
- Install cellular confinement mats over the area. Expand the Cellweb or other proprietary brand panels to the full length. Trim to desired width with a craft knife. Pin the Cellweb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress. Increase number of staking pins from 10 per panel to 20 on any downward side of mattress to provide greater support for the section of the hard surface subject to camber. Install treated timber boarding for lateral support secured by robust stakes for both sides

- Infill the Cellweb with a clean no fines angular granular fill of size 40-20mm within This material is then compacted with the use of a smooth wheeled roller.

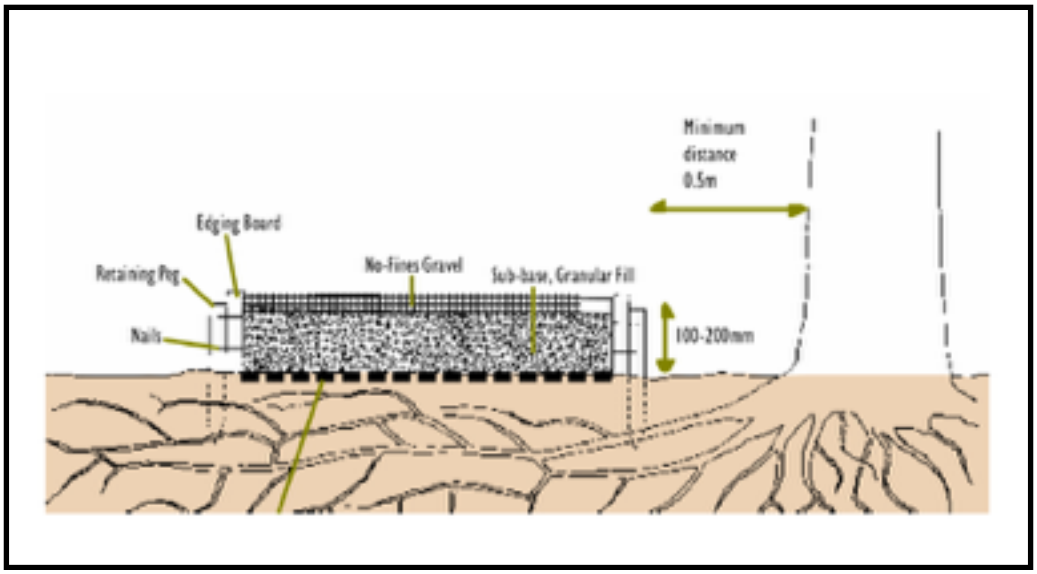
- Install second layer of geo textile separation filtration layer.

- The excavation needed for the placement of edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this will be avoided either by the use of alternative methods of edge support. It is proposed to use a no dig option such as pinned edging. The final specification will be defined by the project architect. Where it is necessary to pin edging in place, the pins should, where practical, be located clear of any major tree roots visible on the surface.

- Finally a surface layer is applied; this must be porous. 'No dig' construction is accomplished through the use of a perforated cellular confinement system in the sub-base layer. Cellular confinement systems reduce the overall depth of construction by introducing a cellular structure which dissipates downward loads by a horizontal transfer through the cell structure. This process in conjunction with the perforated cell wall also imports structural integrity to free draining aggregates which would otherwise be unacceptable in road construction. Therefore, a robust, shallow and free-draining sub-base is achieved, which allows access whilst allowing water and oxygen to *permeate down to the tree roots.*



Cellular Confinement schematic 1



Cellular Confinement schematic 2

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8.14 Method Statement Piling

8.15 It is envisaged that the proposed development will require the installation of a footbridge over the railway line will be within the Root Protection Areas of trees. The foundations of the footbridge should consist of sleeved piles and on no account should strip foundations be used within the RPA's of the trees. The foundations will be designed by the project engineers to the minimum required depth introducing Micro Piled or Pile and Beam foundations to minimise the impact on the root systems of trees.

8.16 These construction methods are to be employed which will in effect enable construction above the tree root system. It is understood that the proposed bridge will be constructed from metal and concrete and therefore the load bearing properties of the soil may be material a structural engineer or architect should be able to give technical information in this area.

8.17 Possible Mini-Pile Construction Method - To avoid damaging the roots of these trees, a specialist construction method will be used. The details of such a system will need to be confirmed by specialist engineers, but the defining principles of the foundation types will be as follows:

- Mini-piles will be used. The positions for the piles will be ascertained prior to sinking the piles avoiding major roots.
- If roots in excess of 25mm are encountered they will be avoided.
- Roots of 25mm or less will be pruned using sharp hand tools.
- Piles will be sheathed to avoid leachates from the wet concrete affecting the soil around the tree roots.
- Piles will be of the smallest practical size to avoid disturbance to roots.
- The floor surface, made of suspended floors, beams or slabs, will be supported by the mini-piles above ground level.
- No excavation will be carried out within the RPA of the tree.

8.18 Additional precautions outside the exclusion zone :-

8.19 Once the exclusion zone has been protected by barriers and ground protection, construction work can commence. All weather notices should be erected on the barrier with words such as: "**Construction exclusion zone — Keep Out**".

8.20 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 coming into contact with 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 in close proximity to trees

should be conducted under the supervision of a banks-man to ensure that adequate clearance from trees is maintained at all times. In some circumstances it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning.

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

c) Fires should not be lit in a position where their flames can extend to within 5 m 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 tree.

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.

9.0 Supervision

9.1 Most damage to trees on developments sites is caused inadvertently and to ensure continued protection during development a system of site monitoring is proposed.

9.2 Basic checks will ensure that ground protection remains intact. Any unforeseen issues can also be identified and discussed before damage to the tree(s) occurs.

9.3 The Local Planning Authority may secure the following schedule by way of Planning Condition. To be effective the Local Planning Authority must provide us with a copy of the formal Decision Notice to ensure we can then contact and follow up the proposed monitoring. A copy of the Decision Notice should be emailed to enquiries@arbconsultants.co.uk The number of proposed visits is driven by the scale of the proposal

Visit	Date	Status
Pre-commencement Inspections Attend site to inspect type and location of tree protection and any temporary ground protection prior to development commencing and discuss any issues associated with demolition/ enabling works	**TBC**	**Incomplete**
Site Inspection Attend site to confirm ground protection remains in place and supervise etc.	**TBC**	**Incomplete**
Site Inspection Attend site to confirm ground protection remains in place and supervise etc.	**TBC**	**Incomplete**
Site Inspection Attend site to confirm ground protection remains in place and supervise etc.	**TBC**	**Incomplete**
Site Inspection Final site visit to confirm that no damage has been done to retained trees/ identify any remedial actions in the event damage has occurred. Assess any required tree surgery following construction	**TBC**	**Incomplete**

10.0 Conclusion and Impact Statement

10.1 Trees within and adjacent to the proposed site and compliant with the scope of the development have been assessed in accordance with BS:5837:2012.

10.2 The trees afford amenity through their softening of the landscape.

10.3 Five hundred and sixty five standing trees and groups have been assessed in response to the proposed development. It is anticipated that no inspected tree will be felled to facilitate development but a number of category u trees should be felled to reduce risk to the public.

10.4 The impact of the proposed development has been assessed and in our professional opinion provided that the works take place in accordance with the method statements specified and replanting appropriately, the works will not be detrimental to the retained trees and the overall arboricultural population will remain stable.

10.5 No work shall commence on site until such time as this method statement has been submitted to and approved in writing by the Local Planning Authority. All retained trees on the site shall be protected from damage as a result of the works on site, to the satisfaction of the Local Planning Authority in accordance with its guidance notes and relevant British Standards (e.g. BS5837:2005) or the duration of the development. In the event that trees become damaged during construction, the Local Planning Authority shall be notified and remedial action agreed and implemented. In the event that any tree(s) dies or is removed without the prior consent of the Local Planning Authority, it shall be replaced within the first available planting season, in accordance with details agreed with the Local Planning Authority.

10.6 All technical issues relating to arboriculture should be addressed to Arbconsultants Ltd in the first instance. Arbconsultants Ltd will liaise between the Local Planning Authority and any interested parties. It is suggested that the development proceeds in accordance with the above recommendations.

Appendix 1
Site Location

arbconsultants ltd
The Rural Business Centre, Myerscough College, Bilsborrow, Preston, Lancashire PR3 0RY
Tel: 0787 601123 Email: enquiries@arbconsultants.co.uk
Web: www.arbconsultants.co.uk

Appendix 2
Tree Survey Data Tables

arbconsultants ltd
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Appendix 3
Tree Survey

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Appendix 4
Tree Constraints Plan (TCP)

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Appendix 5
Proposed Footpath)

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Appendix 6
Root Protection Area (RPA) Calculations

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