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Westwood Group Limited

ARBORICULTURAL IMPACT ASSESSMENT
AND
METHOD STATEMENT

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Trevor Bridge Associates Limited

July 2014

Ref: MG/4843/AIA&AMS/JUL14

Contents

1.0 Introduction

2.0 Arboricultural Impact Assessment

2.2 Loss of trees
2.3 Tree pruning required
2.4 Future growth constraints of trees being retained
2.5 Shade and seasonal nuisances
2.6 Impacts within Root Protection Areas
2.7 Storage of materials, contractor parking and site logistics

3.0 Method Statement

3.5 Tree works – general issues
3.6 Protective barriers
3.7 General requirements
3.8 Arboricultural monitoring
3.9 Health and safety issues

4.0 Method Statement Schedule

Appendix A - Signs to attach to protective barrier fencing
Appendix B - Site Inspection Pro-forma
Appendix C - Specification for installation of geo-textile cellular confinement system
Appendix D – StablePath system information

1.0 Introduction

1.1 This document has been prepared by Trevor Bridge Associates on the behalf of Westwood Group Limited. It provides an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) in regards to the following proposed development.

- Renovation of existing building including alterations to access driveway and provision of new parking areas.

1.2 This document follows, and should be read in conjunction with, an initial pre-development tree survey that was undertaken by TBA Ltd in July 2014 (ref: MG/4843/TSR/JUL14) and the accompanying tree survey plan (ref:4843.01).

1.3 For the purposes of preparing this document the following material was referenced:

- TBA drawing: Overlay of the tree survey, proposed site plan and existing site plan (drawing not published but used for reference for the purpose of this document).

- Client Drawing: Proposed site plan and external works. Project No.: 308. Drawing No.: PL-05. Date: Feb. 2014

1.4 This report must be read with the following TBA drawing:

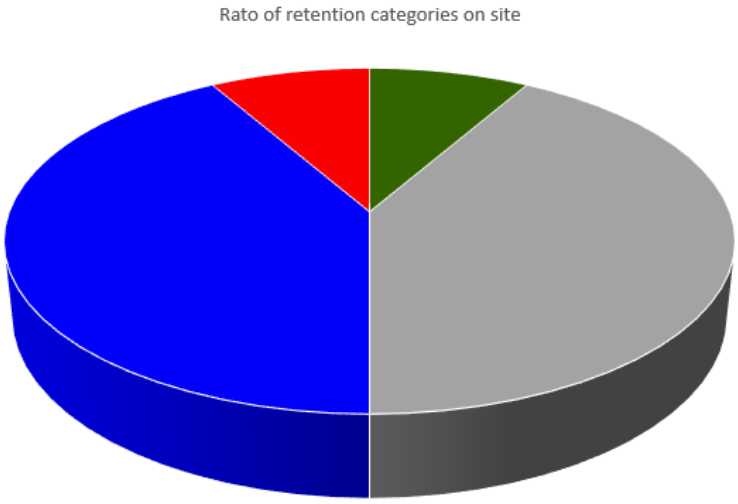
- **Tree Protection Plan. Drawing No. 4843.02. Date: July 2014.**

2.0 Arboricultural Impact Assessment

2.1 The consequences on existing trees situated within and adjacent the proposed development site are considered. Issues such as tree loss, the relation between trees being retained and the development layout are addressed. Issues such as potential space/room for retained trees to develop, light loss, and shading of residential properties are discussed.

2.2 Loss of trees

In the initial tree survey report a total of 22 individual trees and 2 groups were surveyed. The chart and table below shows the ratio of tree retention categories on the site and number of items (be it groups or individuals etc that were surveyed).



Retention Category	No.
A (High value)	2
B (Moderate value)	10
C (Low value)	10
U (Remove)	2

2.2.1 The above surveyed trees the following items are proposed for removal as a consequence of the development proposals:

TREES / GROUPS TO BE REMOVED		
No.	**Species**	**Retention category (Value)**
G1	3x Rhododendron	Low
T6	Elm	Low
T10	Cherry laurel	Remove
T12	Lime	Moderate
T13	Sycamore	Moderate
T15	Sycamore	Low
G2	Remove Rhododendron within group G2 (group is moderate value but Rhododendron is low value)	Low

2.2.2 The trees to be removed are all low value apart from two mature specimens situated adjacent the access driveway, T12 (Lime) and T13 (Sycamore). Both these trees would require removal due to the widening of the access driveway (see Figure 1).

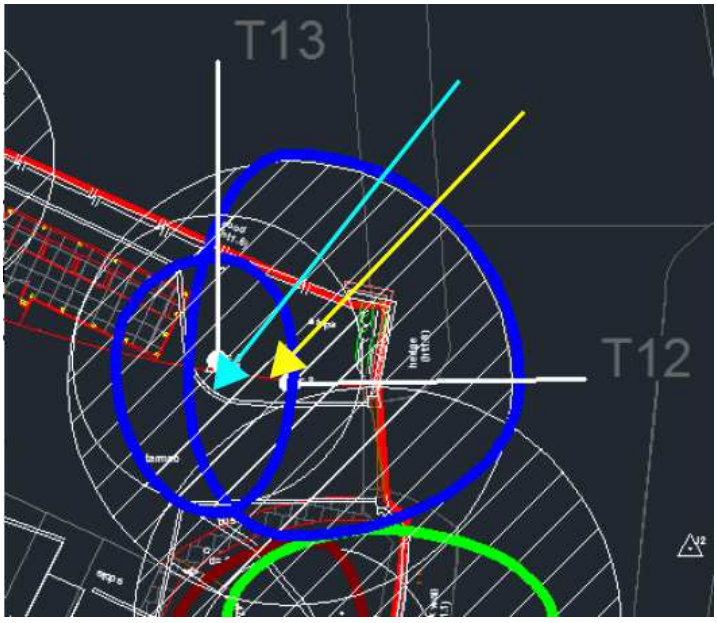


Figure 1. The blue arrow indicates the location of the existing driveway verge. The yellow arrow indicates the proposed location of the verge. The movement of this verge would require the removal of both trees.

If both trees were removed the corner verge would still remain and provide an excellent opportunity for replanting.

If loss of the two trees is required, there remains the potential to widen the access drive further to the north, thus lessening potential impacts on T11, a high value Lime.

2.2.3 It is essential that should the following felled trees require the stumps removing that this must be undertaken using a hand operated stump grinder (as opposed to having the stumps removed using mechanical plant machinery):

- G2 (Rhododendrons)
- T6 (Elm)
- T10 (Cherry Laurel)
- G2 (Rhododendron)

2.3 Tree pruning required

2.3.1 The following pruning is recommended:

No.	Species	Pruning Required
T5	Ash	Remove major deadwood within the canopy.
T7	Yew	Crown clean to remove previous pruning stubs.
T8	Yew	Crown clean to remove previous pruning stubs.
T20	Sycamore	Crown-lift lower branches to provide approx. 4m clearance above ground level. This should be achieved primarily by removal of secondary and tertiary branches, and basal growth.

2.3.2 The tree works required should be clearly defined and adhere to recommendations within BS3998: 2010, Tree work recommendations.

2.4 Future growth constraints of trees being retained.

2.4.1 There are no sections of the site in which trees will excessively outgrow their location due to future growth potential; the vast majority of trees within the site being retained have reached a climatic height and spread.

2.5 Shade and seasonal nuisances

2.5.1 The juxtaposition of the existing building and trees being retained will not material change from the existing layout. New residents may take differing views on trees in the vicinity of the building but it would be unreasonable to consider that any major pruning works are justifiable.

2.5.2 A material alteration to the layout does arise in the provision of new parking spaces. While these parking spaces do not significantly alter the overall layout, they can potentially be impacted by leaf drop. In the case of the visitors car-parking spaces this is a negligible issue; these spaces can be expected to be occupied by the same cars on a regular basis. Some element of honey dew drop may occur in relation to Sycamore tree T20 and Sycamores within G2 in relation to parking spaces. These issues are not significant however; these Sycamores are early mature, can be subject to management pruning.

2.6 Impacts within Root Protection Areas

2.6.1 A number of incursions within Root Protection Areas will occur of varying degrees. I do not consider any to be significant enough to cause significant tree damage (such as that that would cause structural instability, or likely cause significant decline) though it is likely that some level of root disturbance will occur. In cases methods can be employed to remediate impacts. Below is a list of the trees that would be impacted, along with potential remedial methods that can be employed:

Ref. No.	Tree Species	Retention Category	Notes
T11	Lime	A2	This tree is situated close to the existing access driveway and as such will be impacted by requirements to increase the width of the driveway, construct a footpath and construct a visitor car-parking space. Further disturbance may occur from the re-surfacing of any existing tarmac / hard standing areas within the root protection area of the tree. The widening of the driveway will result in loss of a grassed area of some 3.4m³ within the root protection area. The new pavement will result in a grassed area of some 8m³ being lost. It is possible that the pavement may be constructed using a 'non-dig' methodology; such as use of a cellular confinement system. Such a system would require marrying up with the existing pavement, but the need to remove a section of existing wall provides some opportunity to adjust ground levels whilst minimising disturbance to tree roots.

Ref. No.	Tree Species	Retention Category	Notes
T14	Sycamore	B	There is potential to improve the rooting area of T14. An existing area of hard surface will no longer be required and therefore may be excavated by hand and re-instated with soil. The Store bin can be constructed within the existing hard surface.
T16 & T17	2x Beech	B	There is potential to improve the rooting area of both of these trees. An existing area of hard surface will no longer be required and therefore may be excavated by hand and re-instated with soil.
T20 and T21	Yew and Sycamore	C	There is potential to improve the rooting area of both of these trees. An existing area of hard surface will no longer be required and therefore may be excavated by hand and re-instated with soil.
T21 and T22	Ash and Pear	C	New car-parking areas will ingress within the root protection areas of these trees. While disturbance will occur to these trees, and removal of the trees remains an option, the trees may be retained despite some level of disturbance to their root protection areas.
G2	Mixed Species Group	C	New car-parking areas will ingress within the root protection areas of these trees. While disturbance will occur to these trees, and removal of the trees remains an option, the trees may be retained despite some level of disturbance to their root protection areas.

2.7 Placement of underground services

As there is an existing building, services will already be connected. At the time of considering the layout design no information was available relating to any proposed locations of new underground services. By default no services should be placed within the identified Root Protection Areas of trees being retained. While it is possible in some cases that underground services may be placed within Root Protection Areas, this is best done under arboricultural supervision (at least initially) and follow industry best practice (see section 3.7.9). Where special installation methods are necessary (such as pipe jacking) supplementary method statements must be provided. The proposed location of underground infrastructure must be made available to the local planning authority prior to installation.

2.8 Storage of materials, contractor parking and site logistics

Logistically the site has ample space for the placement of site offices and storage. As a simple principle office locations shall be placed outside the Root Protection Areas of trees being retained, or within areas of exiting hard standing.. Mixing areas shall comply with section 3.7.8 of the method statement.

3.0 Arboricultural Method Statement

3.1 The Arboricultural Method Statement (AMS) specifies all measures to be undertaken to ensure the ongoing health and viability of trees to be retained within the proposed development.

3.2 This AMS is in compliance with British Standard 5837: 2012**. Accompanying this document is a plan that shows the position of protective fencing and any additional special measures that are required. This plan is referred to as the Tree Protection Plan. (ref. 4843.02).**

3.3 The AMS must be considered a 'working document'. It must be made available to the developer, site manager, and LPA. A copy of this document, and the Tree Protection Plan must be kept on the development site at all times. All site operatives must be briefed on the main contents of this document.

3.4 It is the Site/Project Manager's responsibility to ensure that the detail of this AMS and the TPP and any agreed amendments are known and understood by all site personnel. A copy of this AMS and the TPP will be available for reference on site by the Project and Site Managers, and will form the basis of the management of all works relating to the trees on the site following commencement of the project. The Site Manager shall induct all personnel who could have an impact on trees on the content of this document

3.4.1 Tree Protection Plan. The Method Statement provides general recommendations (sections 3.5 to 3.23) then details site specific issues within a phased schedule in section 4.0.

3.5 Tree Works –General Issues

3.5.1 All tree works (tree felling and pruning) are to take place prior to any site operations and immediately before the installation of protective fencing.

3.5.2 All works to the existing trees are to be carried out by a fully qualified tree surgeon and in accordance with BS 3998 (2010) *Recommendations for Tree Work*.

3.5.3 The necessary tree surgery works should be carried out **before** any construction work starts and immediately before erection of protective fencing. Any works will include any trees that require removal in order to facilitate construction and access. No tree works must be carried out unless permission is provided by the local planning authority. Tree works to any protected trees (trees within a Conservation Area or subject to a Tree Preservation Order) that do not require works to directly enable the development to proceed will require a notification/application to be made to the Local Planning Authority. Any tree works required in order to directly facilitate the development to proceed (such as tree felling) must not proceed unless full planning consent and written consent is given by the local planning authority.

3.5.4 Wildlife issues and timing of operations. The following must be observed:

Bats. Under current legislation it is an offence to 'intentionally or recklessly disturb a bat' or 'damage, destroy or block access to the resting place of any bat'. For further details consultation must be made with the Statutory Nature Conservancy Organisation (Natural England, 0300 060 1842 www.naturalengland.org.uk). Where relevant any current ecological surveys for the site will take precedence in this matter.

3.5.5 Birds. It is an offence to kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while it is in use or being built. Therefore work likely to disturb nesting birds should be avoided from late March to August.

3.6 Protective Barriers

3.6.1 Protective barriers must be erected prior to any site operations. The protective barriers are essential to prevent root severance or compaction of the soil in the Root Protection Areas, and so give the best chance of continued good health of the retained trees.

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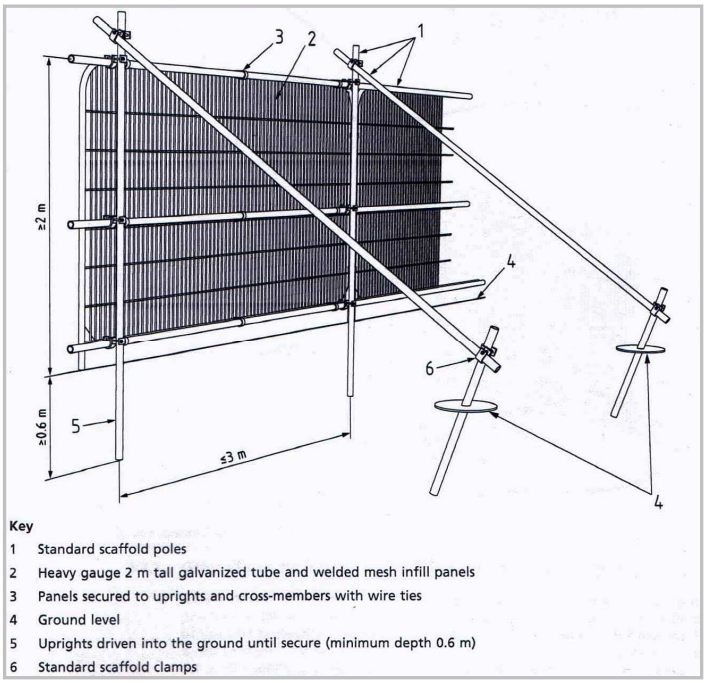
3.6.2 Barriers should comprise a vertical and horizontal scaffold framework which is braced to withstand impacts. The vertical tubes should be spaces at a maximum interval of 3m and driven securely into the ground. Onto this framework welded mesh panels should be securely fixed (such as Heras).



Care must be taken when locating vertical poles to avoid underground services and, in the case of bracing poles, also to avoid contact with structural roots. If the presence of underground services prevents the use of driven poles, an alternative specification should be prepared; such alternatives could include the attachment of the panels to a free standing scaffold support framework.

3.7 General Requirements

3.7.1 Developers must enforce the methods of protection identified within the statement. All contractors must also agree to them. Any failure to comply with them must be dealt with by the developer. Any damage that may occur to trees due to failure to observe the method statement must be reported to the Local Planning Authority and arboricultural advice must be sought.

3.7.2 No pruning, lopping, felling or severance of roots is to take place without prior consent of the local authority or unless in compliance with specifications included within the Method Statement.

3.7.3 **The ground levels within the protected areas, be they fenced or special working areas, must neither be raised nor excavated unless specifically in compliance with requirements within this method statement.**

3.7.4 No ropes, cables, services, or notice boards shall be fixed to existing trees.

3.7.5 Fires should not be permitted, or else not lit where flames could extend to within 10m of the foliage, branches or trunk of any trees (it should be noted that local environmental health authorities may have specific restrictions on fires),

3.7.6 Should temporary access within the Root Protection Area be required that is not included within the method statement, an agreement, in advance, with the consultant and the LPA must be made. The fence may need to be re-aligned and the ground surface protected. For vehicular access this protection will need to be specifically detailed and agreed.

3.7.7 Care must be taken in regards to tall or wide loads, or use of plant with booms, jibs and counterweights. Where machinery may be required to operate in the vicinity of trees a banksman must ensure that no direct physical damage is caused is trees. It must be checked that any materials or vehicles entering the site are able to do so without causing damage to adjacent trees.

3.7.8 Any material that will contaminate soil (e.g. concrete mixings, and vehicle washings) must not be discharged within 10m of any Root Protection Area. In addition it is essential that allowance be made for the slope of the ground so that damaging materials cannot run towards trees, or Root Protection Areas. If diesel and fuel containers are used or stored on site they must be kept within a plastic container bund to prevent any ground contamination and spill kits must be kept available to remediate any spillage).

3.7.9 Where trenching may be required for the placing of underground services all works must adhere to ***Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG4***). National Joint Utilities Group, 2007. This document is freely available online (www.njug,org.uk/publications/).

3.8 Arboricultural monitoring

(i) The arboricultural consultant (or local authority Tree Officer) shall be consulted whenever an unexpected issue occurs that involves any retained tree on site including access within the Protection Area.

Tree Officer (To be confirmed)
Mike Gregory (Arboricultural Consultant) 07515827944.

(ii) No amendments shall be made to the methods detailed in this Arboricultural Method Statement without the agreement of the consultant or local planning authority Tree Officer.

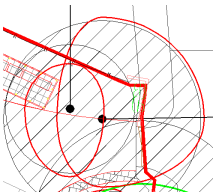
(ii) If the site agent is at all unclear about exact compliance with any of the above requirements, or if requested by any other party, then a pre-start meeting shall be arranged with the architect, site agent, local authority tree officer and arboricultural consultant in attendance as necessary.

3.9 Health and Safety Issues

All operations must be carried out with full regard to Health and Safety requirements. Due to the diverse nature of recommendations included (e.g. tree surgery works, construction etc) it is necessary that supervisors of those undertaking recommended operations undertake risk assessments prior to starting the relevant works. It should be the Site Managers/developers responsibility to ensure that risk assessments are submitted prior to undertaking relevant works.

4.0 Method Statement Schedule

<table>
<tr><th>Phase</th><th>Requirements</th><th>Method</th></tr>
<tr><td>1
Prior to any construction works on site</td><td>Undertake tree felling and tree pruning works

Trees and groups to be felled (outlined in red):
</td><td>Refer to section 3.5 of AIA/MS report.

All tree works to be carried out to BS3998: 2010: by suitably qualified and insured professional tree surgeons.

All items requiring felling are marked in red on the Tree Protection Plan.

Tree pruning required is listed in the table below:

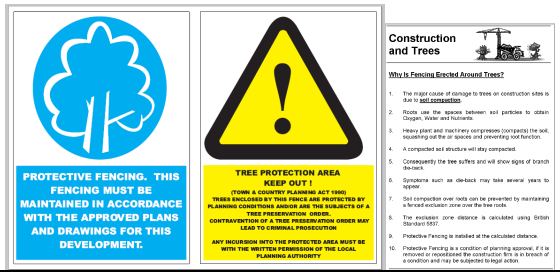
<table>
<tr><th>No.</th><th>Species</th><th>Pruning Required</th></tr>
<tr><td>T5</td><td>Ash</td><td>Remove major deadwood within the canopy.</td></tr>
<tr><td>T7</td><td>Yew</td><td>Crown clean to remove previous pruning stubs.</td></tr>
<tr><td>T8</td><td>Yew</td><td>Crown clean to remove previous pruning stubs.</td></tr>
<tr><td>T20</td><td>Sycamore</td><td>Crown-lift lower branches to provide approx. 4m clearance above ground level. This should be achieved primarily by removal of secondary and tertiary branches, and basal growth.</td></tr>
</table></td></tr>
<tr><td>2
Prior to any construction works on site</td><td>Erection of protective fencing:</td><td>Protective fencing is to be erected in accordance with 3.6 of AIA/MS report.

The fencing must comply with the positions shown in the Tree Protection Plan.

No works, no storage of materials, no access, or any ground disturbance is to take place within the Tree Protection Barrier Fencing. Fenced areas are to be treated as Construction Exclusion Zones.

Warning signs to be placed on all protective fencing. For large sections of fencing the signs must be placed at 20m intervals.

Signs must be laminated and securely attached at all corners. Two signs are to be placed side by side; copies of which are attached within Appendix A.

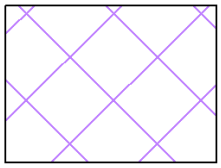
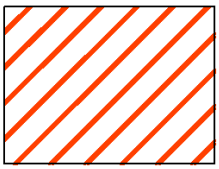

</td></tr>
<tr><td>3
Checking of protective fencing</td><td>Verify the location and quality of protective fencing is adequate prior to starting development works</td><td>Site visit with Arboricultural Consultant and Site Manager.

Tree Officer to be pre-informed of visit. Protective fencing to be checked in terms of position and specification.

In order for development to proceed the pro-forma in Appendix B. of the AIA/AMS report is to be completed and passed on to the local planning authority:

If the protective fencing is not adequately erected work cannot proceed until fencing is rectified.</td></tr>
<tr><td>4
Start of development</td><td>Commencement of development</td><td>Protective fencing to remain in situ during development phase.

Temporary access are to remain undisturbed.</td></tr>
</table>

5 If footpaths within Root Protection Areas.	Construction of footpath / pavement within root protection area of T11. 	Access will be required to install the pavement – this will require moving the protective fencing back to the other side of the path **immediately** before construction. Hard surface areas are required for pedestrian access within and close to Root Protection Areas. A specification must be provided by an engineer. The following must be adhered to: • The design should not require excavation into the soil, other than removal of turf layer and other vegetation using hand tools. • The structure of the path/hard surface should be designed to avoid localised compaction. • The hard surface should be resistant to, or tolerant of deformation by tree roots, and should be set back from any stems by a minimum of 500mm. • A surface that provides permeability is desirable. Edge supports where required should comprise boarding with pegs or similar proprietary products where no ground excavation is required. Proprietary systems may be used such as a Geotextile Cellular Confinement System (see Appendix C) and Stable-Path (Appendix D).
6 Removal of existing hard surface areas.	Removal of hard surface areas (within nominal root protection areas) and re-instatement with soil. 	Once all above ground structures have been removed, the hand digging / removal of existing hard surfaces within the RPA of trees being retained can be undertaken. The following sequence shall be followed: 1. The sections of hard surface requiring removal by hand are to be marked up using a spray can. Areas are to be hatched in spray paint and written with 'Root Protection Area' at regular intervals. 2. Prior to the commencement of works arboricultural supervision must be arranged. Supervision may not be necessary for all of the works, but for the start of works so workmen undertaking works can be sufficiently briefed on how to undertake works. The Tree Officer shall also be informed so spot checks may be undertaken 3. Prior to the start of works a quantity of top soil must be made available and stored on site. The quantity of top soil is to be determined by the developer and shall be amount sufficient to provide a 150mm back fill of soil within all existing hard surface areas within tree root protection areas. 4. A single root protection area barrier is to be removed to allow access. 5. Work is to be undertaken in a 'work back' manner; i.e. vehicles can be parked on adjacent hard surface (for removal of debris and replacement of soil). All excavation of hard surfaces is to be undertaken by hand only, use of a jack hammer is acceptable. Sub-base material should be removed where possible, but if doing so causes disturbance to roots then minimal amounts should be removed and top soil placed on top. 6. Back filled top soil is to be laid to approximately the original level of the hard surfaces (though settlement should be accounted for). The surface may be compacted lightly. 7. If works are being undertaken **with arboricultural supervision** it is acceptable to use a mini-excavator under such supervision, though at any other time hand tools must be used.
7 Completion of main construction and undertaking of landscaping	Dismantling of protective fencing	It is essential that ground levels within the root protection areas are not altered, either by raising or lowering soil levels; even at the landscaping stage. Where trees are being retained on a slightly raised embankment that embankment must be retained and any ground level alterations must marry up with the edge of the protected area. Landscaping operations must not be undertaken in a manner that will impact trees. If new turf is required, any existing turf is to be removed using a hand operated turf removal machine, then new turf laid on the existing ground – a rotovator or similar soil tilling machinery must not be used within root protection areas. Where small divots or depressions are present it is acceptable to fill these with a good quality top-soil and lightly compact.

APPENDIX A - SIGNS TO ATTACH TO PROTECTIVE FENCING



Construction and Trees



Why Is Fencing Erected Around Trees?

1. The major cause of damage to trees on construction sites is due to **soil compaction**.
2. Roots use the spaces between soil particles to obtain Oxygen, Water and Nutrients.
3. Heavy plant and machinery compresses (compacts) the soil, squashing out the air spaces and preventing root function.
4. A compacted soil structure will stay compacted.
5. Consequently the tree suffers and will show signs of branch die-back.
6. Symptoms such as die-back may take several years to appear.
7. Soil compaction over roots can be prevented by maintaining a fenced exclusion zone over the tree roots.
8. The exclusion zone distance is calculated using British Standard 5837.
9. Protective Fencing is installed at the calculated distance.
10. Protective Fencing is a condition of planning approval, if it is removed or repositioned the construction firm is in breach of a condition and may be subjected to legal action.

APPENDIX B - Site Inspection Pro-forma

SITE INSPECTION - ARBORICULTURAL METHOD STATEMENT (Ref: MG.4843.AIA/AMS.JUL14)

Site Address : Santaidd House, Burnage

Name of Arboricultural Inspector:

Date of Inspection:

The purpose of this site inspection is to confirm with requirements in Section 4.0, Phase 3 of the above referenced Arboricultural Method Statement.

The site is to be visited and the placement of protective fencing checked for compliance with specifications within the method statement.

Further works on the site shall not proceed until the protective fencing is erected in compliance with the method statement and in submitting this document to the Local Planning Authority the inspector is verifying that the necessary specifications have been met.

Notes:

Photographs: (attach below):

APPENDIX C – Outline specification for installation of Cellular Confinement System

Prepared by:	Cooper Clarke	Approved by:	
Distribution:	Site Manager, Client Representative, Site Operatives		

	Action
1.0 Introduction This method statement describes the procedure required to undertake the construction of an access-way whilst exerting no adverse effects on underlying roots to neighbouring trees. The proprietary Cellular Confinement System product, is employed to create a structurally sound layer which dissipates loads efficiently and permits the use of free draining aggregates. This document is offered for guidance only and must be incorporated into the specific documents pertaining to the site in question.	
2.0 References British Standards Institution (2012), BS 5837: Trees in relation to construction.	
3.0 Labour , Plant and Materials **3.1 Labour (minimum)** • 1 No Site Supervisor / Engineer • 2 No Site Operatives • 1 No Mini Excavator Operator • 1 No Tree Of **3.2 Plant** • 1 No Mini Excavator • 1 No CAT Scanner • 1 No Whacker Plate • Hand Tools (shovels, spades, wrecking bars, hammers, spirit level, drill, craft knife) **3.3 Materials** • PPE as required by Site Supervisor • Cellular Confinement System • Stapler and Staples • Staking Pins • SNW40 Separation Geotextile • Edge Restraints • Infill Aggregate (normally 40 – 20mm no fines) • Wearing Course as required by Client / Architect / Arborculturist	

4.0 Method of Working

4.1 Responsibilities

- The Site Supervisor shall be responsible for the overall implementation of this method statement.
- The Site Supervisor shall be responsible for ensuring the work area has been CAT scanned and services identified on the ground by a responsible person using equipment within calibration. All relevant service drawings will be checked and any necessary trial holes will be excavated.
- The Arboriculturist shall determine the permitted depth of excavation or grading, if any.
- The Site Supervisor shall be responsible for the safe handling and distribution of materials around the site.
- The Site Supervisor shall be responsible for providing a completed Quality Assurance document at the conclusion of the scheme

4.2 Method Preparation

- The Site Supervisor will determine the exact location of the area to receive the Neoweb product, and any excavation or grading work. This will be presented to the Client or his representative for approval. Once approved the area will be CAT scanned to identify any services.
- Following the CAT scan, the Site Supervisor will direct the Mini Excavator Operator to carry out any excavation / grading
- The Site Supervisor shall ensure the prepared surface meets the necessary strength requirements prior to following works.
- The Site Supervisor shall provide the setting out of any edging requirements.

Edge Supports

- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunching can damage tree roots, Within the Root Protection Area (RPA), this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- For example, where kerbing is required for light structures, such as footpaths, peg and board edging may be acceptable. For more substantial structures, such as estate roads, railway sleepers may be acceptable, retained in place with track pins or road pins. In some situations, for example where the roadway needs to traverse a lateral slope, gabions could be used to provide a kerbing solution (in this example, the gabions are installed on the down-hill side of the road). Gabion can be interlinked, or pinned in place, Where it is necessary to pin kerbing in place, the pins should where practical, be located clear of any major tree roots visible on the surface.
- **Graded Soil**
- Sufficient spoil shall be placed along the edge of the area to receive the confinement system, suitably graded away from the works in order that it may be pulled in at a later date. This eliminates the need to transport soil over the finished surface.
- The spoil shall be graded into the finished structure at the end of the scheme.

Construction

- Lay SNW40 Geotextile over prepared surface between edgings, ensuring overlaps of 300mm minimum. Temporarily retain SNW40 Geotextile with either stakes or weights.
- Install 8 Number 12mm diameter steel pins across the area to be covered by one panel of the cellular confinement system. The pins shall be orientated in order that an expanded panel of Neoweb may be laid over and remain in an expanded state.
- Install the over steel pins; where necessary, remove surplus product with a craft knife.
- Immediately adjacent panels of Neoweb shall be connected by providing four staples at each overlap.
- The expanded product panels shall be infilled with the appropriate aggregate by the Mini Excavator Operator, under the direction of the Site Supervisor. The product shall be overfilled by 50mm to create a surcharge over the product which protects the leading edges of the cells. The Mini Excavator may track over areas of infilled product only.
- The infilled aggregate shall be rolled by the Mini Excavator and whacked to ensure compaction.

Finishes

- **Gravel**
- The Site Supervisor shall conduct a visual inspection of the finished road structure prior to application of any wearing course.
- The Mini Excavator Operator shall distribute a 75mm layer of desired gravel over the exposed infill aggregate.
- The product must have a surcharge of gravel on the top and this must be maintained at all times to prevent rutting or migration and exposure the panels. If this does happens the polyethylene structure will wear away and the stability of the sub base would be in question. Neoweb is designed to take sub-base stresses not abrasive surface wear. Alternatively, you could use Ecoblock 50mm Gravel Retention System.
- If required, a resin bonding agent may be applied to the surface of the gravel wearing course to prevent displacement of the aggregate due to trafficking. This shall be undertaken by a specialist contractor.
- **Paving Slabs and Block Pavers**
- Paving Slabs and block pavers are available with built in infiltration spaces between the slabs or blocks. These are ideal, though they should be laid dry-jointed on a sharp sand foundation to allow air and moisture to penetrate to the rooting area.
- **Grass**
- The Site Supervisor shall conduct a visual inspection of the finished road structure prior to application of any wearing course.
- Lay SNW40 Geotextile over exposed infilled aggregate, ensuring overlaps of 300mm minimum. Pull the Geotextile tight and temporarily retain SNW40 Geotextile with either stakes or weights.
- The Mini Excavator Operator shall distribute a 45mm layer of slightly damp sharp sand over the desired area. The Site Operator shall level sand with a straight edge tamp and spirit level.
- The Site Operative shall compact the sand layer to approximately 30mm with a whacker plate.
- The Site Operative shall lay 4 interlocked units of Ecoblock per square metre, and secure the connection between blocks with 24number pins per square metre. The Ecoblock shall be consumed from random pallets to ensure even distribution of colour, and staggered in formation to ensure even distribution of load.

- The Site Operative shall fill the Ecoblock cells with a predetermined root zone and rake to a finish level with the top of the Ecoblock.
- The Site Operative shall apply grass seed to the finished soil, to the satisfaction of the Client or his representative.

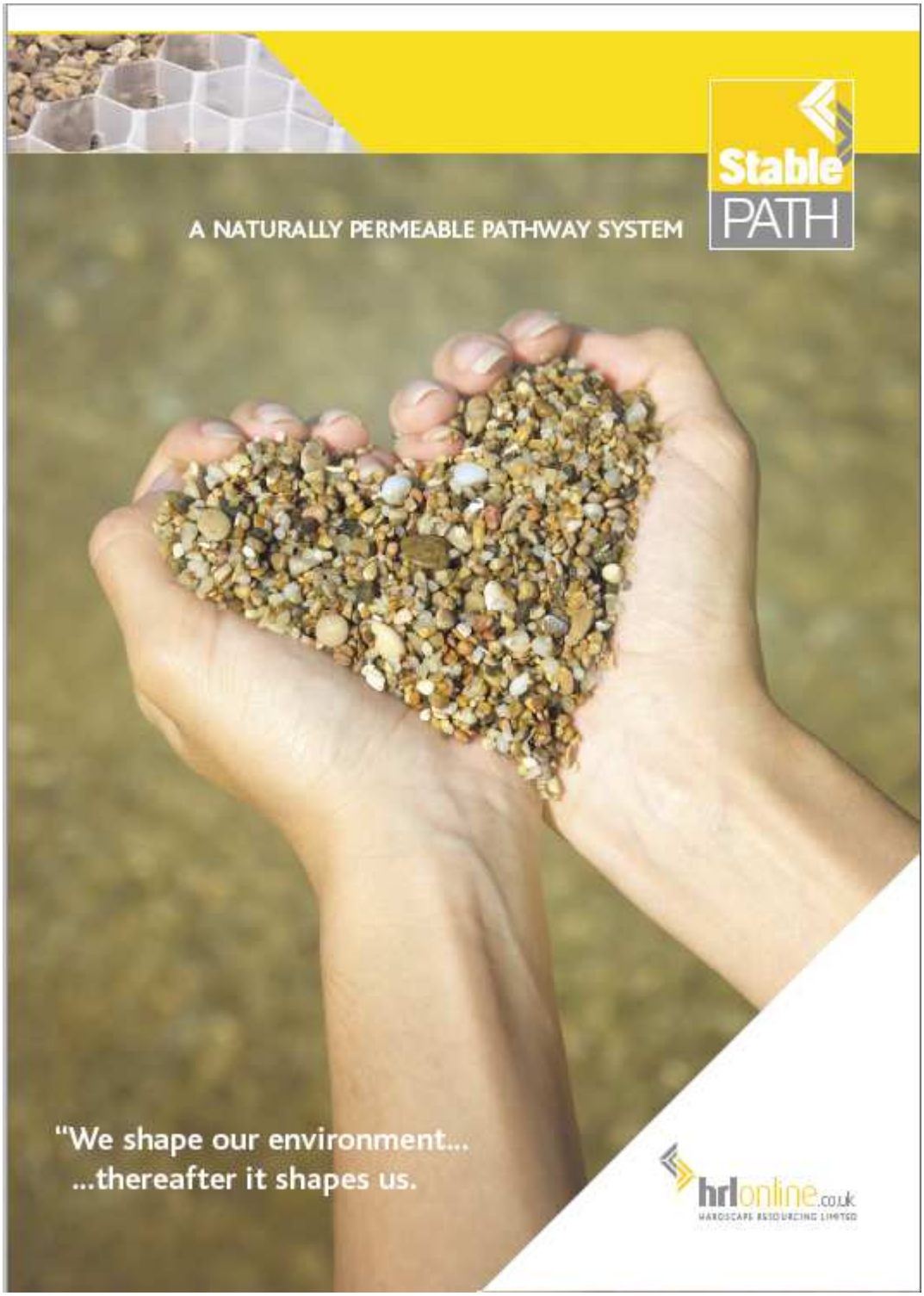
Signing Off

- The Site Supervisor shall ensure all waste material is removed from site.
- The Site Supervisor shall provide the associated Quality Assurance document to the Client.

Cooper Clarke Civils & Lintels has an on-going programme of product research for product performance and development therefore we reserve the right to introduce improvements and design changes to specifications without prior notice.

We have endeavoured to ensure that information contained herein is accurate, however we would strongly recommend that specific advice is sought by individual application to our Neoweb Sales Department.

APPENDIX D – Stable-Path system information



Stabilised Gravel Paving

StablePATH

A NATURALLY, PERMEABLE PATHWAY SYSTEM FOR PEDESTRIAN ACCESS.

StablePATH is a proprietary system for the construction of a truly permeable pavement using a combination of the HRL StableDRIVE gravel stabilisation honeycomb structure, StableEDGE flexible aluminium edge restraints and a specially selected and graded decorative aggregate infill.

The system allows for standard widths from 0.80 mtr to 4.80 mtr without cutting, although cutting to shape for non standard dimensions is simple and inexpensive.

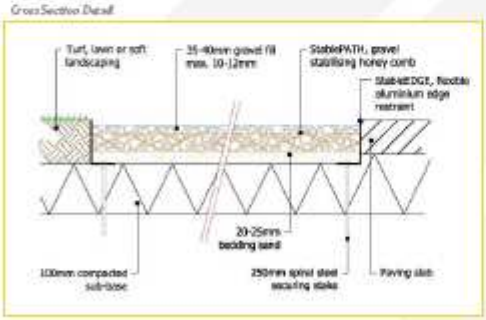
The system offers a very competitive SUDS and BREEAM friendly pavement option, where attractive natural finishes blend into the landscape enhancing both the pavement and its surroundings.







Cross Section Detail



Stable PATH

A NATURALLY PERMEABLE PATHWAY SYSTEM

"We shape our environment...
...thereafter it shapes us.



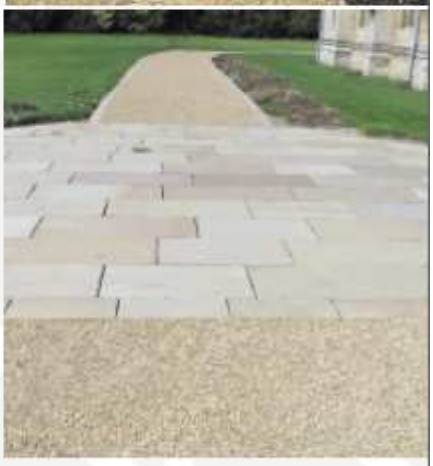
COST EFFECTIVE, FLEXIBLE AND CONTRIBUTING TO THE ENVIRONMENT.

PAVEMENT SURFACE FINISHES:
Four standard single size aggregate blends offered, three recycled options and three granular pathway mixes, providing extensive design flexibility on appearance, texture and performance.

(to view aggregate selection see www.hrlonline.co.uk). Special blends for individual client requirements can be produced to order.

StablePATH is equally cost effective on both curved and straight pavement construction.





NOTES:

1. In most applications a standard type 1 sub base would be both adequate and required. However, the system can be used with permeable sub base construction, where fully designed permeable drainage or rainwater harvesting is sought. In this case the stabilised pavement layer forms part of the permeable capacity calculation.

2. It is possible to use the system onto lightly compacted earth or even relatively un compacted soil/grit mixtures where that is necessary and anticipated loadings in use are light. (For example as tree surrounds, in woodland walkway construction, where excavation is either impractical or undesirable or access to areas where tree roots cannot be disturbed). In those situations deviations from a flat surface can be accommodated by the system.

For information on any of our products range please call us on : 01484 860044
or email: sales@hrlonline.co.uk

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Denby Dale · Huddersfield · West Yorkshire HD8 8QJ
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hrlonline.co.uk
HARDSCAPE RESOURCING LIMITED

Stabilised Gravel Paving



StableEDGE

FLEXIBLE ALUMINIUM EDGE RESTRAINTS.

StableEDGE edge restraints provide an unobtrusive and easily fixed system for determining perimeters to pathways, parking areas, courtyards and hard standings.

Flexible enough to create smooth flowing curves, in addition to secure straight lines, and strong enough to cope with mechanical compaction of adjacent materials, StableEDGE edge restraints offer a productive, cost effective and attractive solution to any bound surface.

The concept is an elegant edge detail solution for stabilised gravel installations. It is equally suitable for:

- Standard Asphalt
- Decorative and coloured asphalt, including segregation of colours
- Resin bound and resin bonded surfaces
- Self binding pathway mixes
- Stabilised gravel systems
- Poured rubber toppings

Depth:	No of Lengths	Metre run per pk.
25 mm	28	67.2
38 mm	22	52.8
50 mm	19	45.6
64 mm	17	41.4
75 mm	13	31.2
100mm	10	24.0







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