

Arboricultural Method Statement (AMS): a Construction Specification for trees

Proposed development Bartons Road Havant PO9 5EY

Report reference 315/AMS/1

Client Fortitudo Ltd

25 August 2022

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1 Summary

The trees to be retained are important landscape trees that make a significant contribution to the amenity of the area and should be protected from demolition and construction activities

This report provides site-specific mitigation...	It is based on the Arboricultural Impact Assessment data for soil, species, sensitivity of the trees to damage and the magnitude of the impacts of the proposed development
...in order to reduce the likelihood of damage to trees...	The guidance in BS5937:2012 <i>Trees in relation to design, demolition and construction- Recommendations</i> Technical Design stage Sections 6-8 applies
...and in order to comply with any planning conditions	Planning conditions typically require adherence to an Arboricultural Method Statement (AMS) and may require a pre-commencement meeting.

2 General precautions

The area within the tree protection fence is a **construction exclusion zone** from which access is prohibited for the duration of a project unless agreed by the Arboriculturist and local authority.

Fires should be avoided	Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches, so take wind direction and potential size of the fire into account.
Run-off from concrete mixing causes damage to tree roots	Concrete mixing should take place on a ply board on top of a polythene membrane and outside the canopy spread of retained trees.
Materials must not be stored and handled near trees	Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the canopy of a tree

3 Construction specifications (CS)

The following construction specifications are specific to the construction activities on this site. These are arboricultural specifications based on the physiological needs of the trees and are not engineering specifications. BS5827:2012 *Trees in relation to design, demolition and construction – Recommendations* is the arboricultural reference.

CS1 Install tree protection fencing (barriers)

The fencing should be erected before anything is brought to site and should not be moved

All trees should be protected by barriers before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences
The Tree Protection Plan (RNapc/315/TPP/1) shows the approved location and specification of the barriers.
Once installed, barriers should not be removed or altered without prior agreement of the arboriculturist and the local planning authority

CS2 Groundwork

Removal of concrete slabs
BS5837 7.2 & 7.3.2

Any concrete slabs on site that are to be removed by machine within the vicinity of trees, the machine should work from outside the root protection area (RPA).

Ground works

All groundworks should be carried out using a toothless bucket

New services and soakaways
BS58937 7.7

Any service trenches should avoid the RPA of retained trees, unless agreed by the Arboriculturist. Soakaways should not be located within the RPA of a retained tree.
Any service trenches that are required can be excavated by machine outside the RPA of retained trees. Where this is not possible manual excavation will be required and no roots with a diameter greater than 20mm shall be severed unless agreed by the Arboriculturist. Soakaways should not be located within the RPA of a retained tree.

Extract from BS5837:2012 Section 7.2

7.2 Avoiding physical damage to the roots during demolition or construction

7.2.1 To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.

NOTE Due to the demands that manual excavation places on a development project, and limitations arising from health and safety considerations, it is not realistic to plan for excavation using hand-held tools where there is a need for trench shoring or grading the sides of the excavation to a stable angle of repose.

7.2.2 *Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible.*

7.2.3 *Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability.*

7.2.4 *Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.*

CS3 Landscaping within the tree's root protection area

Changes in levels must be approved by the Arboriculturist	Any soil removal or replacement, excavation for hard landscape or installing any structure including lighting, water, electric gates etc must be approved by the Arboriculturist.
The tree protection should be retained	No plant or materials should drive over unprotected ground. The fencing can only be removed with the agreement of the Arboriculturist and may have to be reinstalled during a break in operations.
Only use hand held tools, NOT A ROTOVATOR	Unwanted vegetation can be removed using hand held tools avoiding damage to the stems of retained trees.
Post holes should be dug by hand	If any roots >25mm diameter are encountered, either the post hole shall be moved and the hole backfilled.
Use sharp sand for levelling...	...but not marine-derived sand
Do not plant shrubs within 1m of tree stems	Planting holes for shrubs shall be dug by hand and will be repositioned if woody roots are encountered

CS4 Install new hard surfacing

The no-dig surfacing should not be used for construction activities	The no dig surfaces at the southern end of the site are to be installed at the end of the construction phase and not used for construction traffic.
No-dig surfacing for the new pedestrian, cycle and emergency access	See Appendix A for a non-site specific guide to installing. The system should be engineer designed and the installation should be the subject of a pre-commencement meeting. Greenfix Geoweb can provide the necessary calculations and specifications.

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Appendix A: Install a hard surface

Install hard surfacing (Not site specific)

Reference should be made to *AA Guidance Note 12 Cellular Confinement Systems*

A cellular confinement system will be used for the drive/parking area

Appendix A shows a typical **non site-specific** example. We will use Greenfix Geoweb TRP to restrict the impact on the trees. Greenfix can supply the necessary calculations and specifications for their products.

1 Information

These notes are for information or a discussion on site...

The suggested method of installation based on Industry Standards, is for information only. This is not a specification: the structure should be designed by an Engineer. Greenfix Geoweb can do the calculations and provide the specifications.

...because they are general guidelines

The manufacturer's recommendations should always be followed.

2 Preparation

Do not drive vehicles onto the area

Do not drive machinery onto the area. All machinery to be kept outside root protection areas unless using ground protection as agreed by the Arboriculturist.

Use only a toothless bucket

Remove all debris and reduce surface levels to the allowable reduced dig (50mm). If build-up is necessary on existing surface levels, use a no fines permeable material.

Do not roll or consolidate the area

Ensure that the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile.

3 Edging

Choose an edge that doesn't need an excavation

Use tanalised timber edging boards or other approved edge retention to the perimeter of the construction zone as appropriate to the total layer profile thickness. Avoid damage to tree roots when placing fixing posts and pegs.

4 Installation

Use a geotextile to stop pollution	Install a layer of polypropylene non-woven needle punched geotextile separation layer (eg GreenfixTRP4000) across the site, over lapping adjacent rolls by a minimum of 150mm. Lightly pin the geotextile in place until the overlying layers are installed as required.
Grid or no grid?	If the Engineer has specified a layer of geogrid (it depends on the soil strength and the traffic loading/loading) place the geogrid layer over the geotextile layer. Fix using steel pins to hold flat. Overlap adjacent rolls by minimum 150mm.
Stretch and pin the panel avoiding tree roots	Open out the cellular confinement panel between the edging and pin (1m-2m centres) around the perimeter and where panels join using steel fixing pins or similar. The pins hold the fully expanded cells during the filling process. Drive the pins in so that they are just touching the top of the cells.
Cut the panel to fit and join panels using Atra keys	Where panels are to be joined use the ATRA key system which is specific to Greenfix.
Use the correct type of fill	Use a clean, open graded angular non-calcareous aggregate (4mm - 20mm). Work towards the tree from the furthest point away using the filled panel as a platform. Overfill the panel by 25mm.
Do not use...	...single sized, rounded aggregate or DoT Type 1. Do not roll or vibrate the surface. Do not contaminate the filled cells with site debris, soil or mud.

5 Wearing course

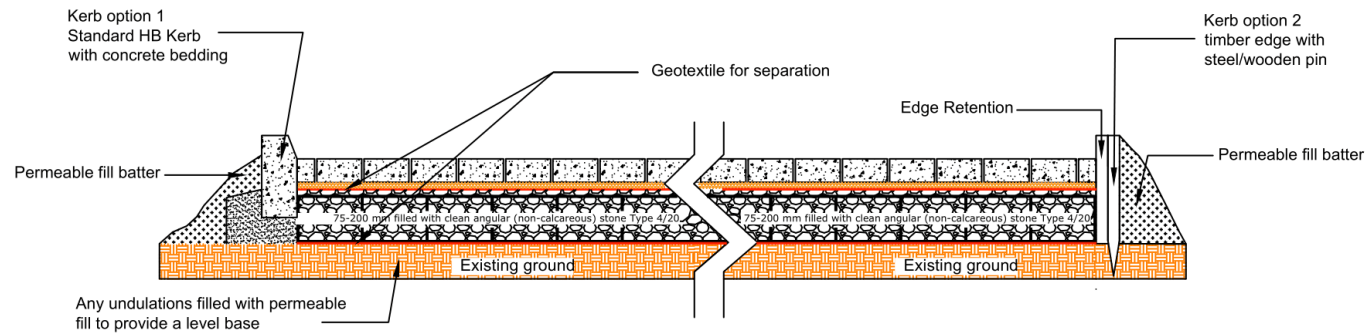
Permeable surfacing only	Install the specified permeable surface layer on top of the panel according to the manufacturer's recommendations. The type of bedding layer will depend upon the specification of the porous surface. An additional layer of geotextile may be required over the filled panel to prevent loss of the bedding layer material into the voids. Refer to the manufacturers' guidance for other surfacing materials.
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6 Final grading

Batter the edge using hand tools only	Once installed, use a good quality topsoil to grade between the finished surface level and the base of the trees.
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Wearing Course Options

1. Block paviors on sand (shown)
2. Porous Tarmac on permeable sub-base
3. Gravel
4. Grasscrete or similar on sand



Depth of cellular confinement system panel to Engineers specifications based on CBR% and type of traffic using the surface

Illustrative design for a no-dig drive based on a cellular confinement system	Scale: NTS	Drawn by: SA	Richard Nicholson Arboricultural Planning Consultant Email: apcnicholson@protonmail.com www.rnafc.co.uk Mobile: 07964865189 14 Main Road Tolpuddle Dorchester DT2 7EW RN apc
	Date: October 2019	Version: RN apc V1	
		Checked by: RN	