

**B.S. 5837 Arboricultural
Method Statement
at
Sevenoaks
101a High Street
Hampton
TW12 2SX
Rev B**

**Client: Holland Green Architecture
The Old Grammar School
Church Road
Thame
OX9 3AJ**

Important note for demolition and construction contractors

This document includes requirements for arboricultural supervision by a suitably qualified arboricultural consultant in certain areas and techniques that may involve a specialised input. Adherence to these requirements is necessary for this document to comply with the Town and Country Planning Act 1990

Prepared by
Simon Hawkins Dip Arb L6 (ABC) N.D Arbor M. Arbor. A.

Date
29/10/2024

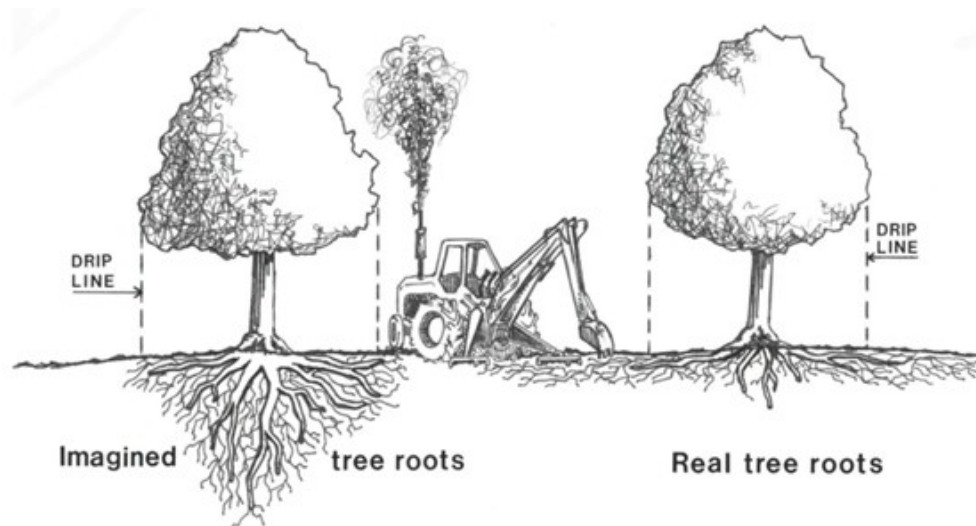


Merewood.
Gregory Road, Hedgerley, Bucks. SL2 3XW
M. 07784 915944 T. 01753 647236
E. simon.hawkins@hotmail.co.uk
VAT No: 990 9313 90

Important information for site managers and all contractors and sub-contractors

This method statement has been prepared to address the protection of trees on the site you are working at. Construction works can be potentially damaging to trees in a number of ways, often because of misunderstanding or a lack of knowledge as to how trees grow and function.

The most vulnerable part of any tree is its root system. Contrary to popular belief, the roots of trees do not grow down deep in to the soil but occupy the upper 600mm, growing far beyond the drip line. Much of the root system of trees is all but invisible to the naked eye being made up of very fine roots sometimes only one cell thick. Added to this, the tree depends on an equally fine network of fungal mycorrhizae that help the roots secure nutrients and water. These too are highly vulnerable.



A diagrammatic representation of how a trees' roots really grow.

Tree roots can be damaged by:

- Excavations
- Soil compaction (driving a machine over the soil will cause roots to suffocate)
- Storing materials (resulting in soil compaction)
- Chemical storage/spills (including cement dust, cleaning tools, paint, etc)
- Burning fires
- Contractor parking
- Service trenches

Trees matter. Take care around the site and if you run into problems, contact the arboricultural consultant.

1.0 Brief:

- 1.1 I am instructed by Holland Green Architecture to prepare an Arboricultural Method Statement (AMS) in respect of a proposed development of the site at Sevenoaks 101a High Street Hampton.
- 1.2 I am to provide instructions for tree retention and protection, including details of appropriate measures that are to be undertaken in order to minimize the impact of development.
- 1.3 The method statement is required to support a planning application for the demolition of existing house and outbuildings and erection of new eco family home, alongside associated works including driveway alterations and landscaping.

2.0 Arboricultural Supervision

- 2.1 An arboricultural consultant will be appointed by the developer prior to the commencement of any works on the site.
- 2.2 Prior to the commencement of works a set up meeting between the main contractor, any (relevant) sub-contractors, a representative from the LPA and the arboricultural consultant will take place. In the event the representative from the LPA is unable to attend, the arboricultural consultant will make a note of discussions and will advise the LPA in writing.
- 2.3 The meeting will establish a line of communication between the working parties and to understand the parameters of the site, underlining the importance of maintaining and respecting tree protection barriers.
- 2.4 At the meeting the AMS is to be signed off by the person responsible for the day to day running of the site (normally the site foreman).
- 2.5 By signing off the AMS, the responsible person agrees that he/she has read and understood the method statement and agrees to adhere to it.
- 2.6 In the event of the responsible person being replaced at any time during the development it will be their responsibility to ensure the new person responsible for the site is made aware of the method statement and the need to adhere to the method statement.
- 2.7 A copy of this report will be permanently available on site for the duration of the development activity. It can also be copied for the purposes of tendering, planning the timing of operations and used as a reference as a general guide on how to protect important trees.
- 2.8 A full scale (1:200) copy of the tree protection plan is to be available at all times on site.

- 2.9 No tree work is to take place without obtaining, in writing, the express consent of the Local Authority.
- 2.10 Once the site becomes active the arboricultural consultant will visit on regular occasions to record specific stages of the development (e.g. demolition, laying of foundations, construction etc.).
- 2.11 All site visits are to be recorded on paper and with accompanying photographs. The purpose of recording the visits is to
 - (a) Provide the developer with proof of compliance in the event of any dispute
 - (b) Allow the LPA to discharge the relevant planning conditions

3.0 The development

3.1 Overview

- 3.1.1 The expected programme of site development where arboricultural input is required is as follows:

- 1. Pre commencement meeting
- 2. Installation of protective fencing and ground protection
- 3. Demolition of the porch and extension
- 4. Installation of the Root Bridge product
- 5. Excavation of foundations
- 6. Erection of main build
- 7. Removal of tree protection measures

3.2 Erection of fencing

- 3.2.1 The tree protection plan (appendix 1) shows the line and position of the root protection fencing to be erected prior to any other works taking place on site.
- 3.2.2 The root protection fencing installation shall be approached from within the central working zone to avoid damage within the root protection area (RPA) itself, in accordance with the recommendations of BS 5837/2012, as illustrated by Fig. 1.
- 3.2.3 The fencing for the root protection zones shall be constructed of scaffold tube uprights (set at 3m intervals with diagonal braces driven securely into the ground). Thereafter 'Heras' type fencing shall be attached to the scaffold framework using either steel strapping or scaffold clamps. The fencing shall comply with the requirements of the British Standard B.S. 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.
- 3.2.4 The fenced off areas are to be regarded as a Construction Exclusion Zone (CEZ). This area is to be considered sacrosanct and strictly off limits to any construction activity including any movement of machinery, storage of materials or parking of contractors' vehicles.

3.2.5 The fencing protecting the RPA is not to be moved unless this has been specifically detailed in the AMS or with the written agreement of the LPA.

3.2.6 There is to be no burning of any materials or substances within 10m of the root protection barriers.

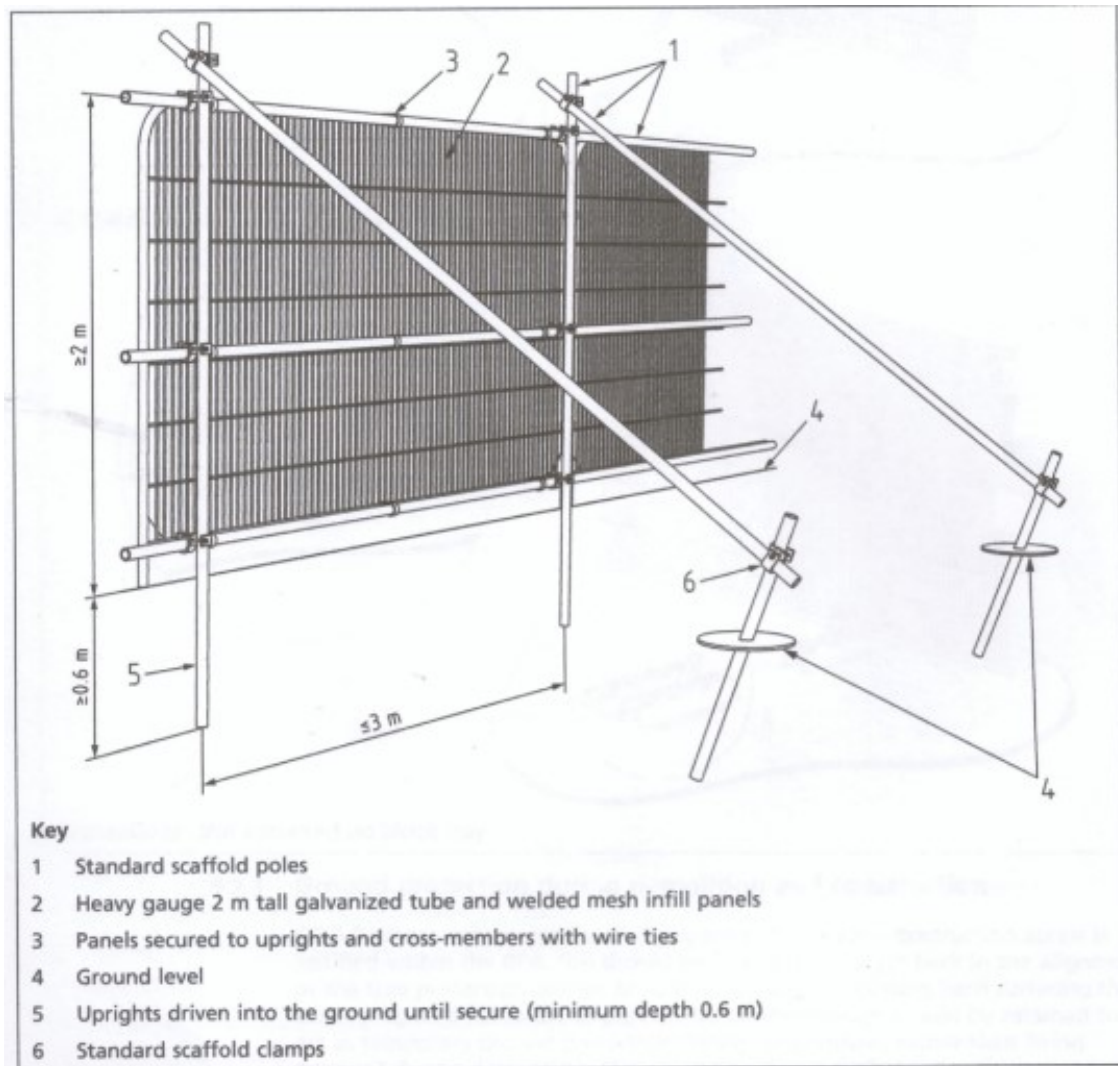


Fig. 1 Protective fencing in accordance with B.S. 5837

3.2.7 There is to be no storage of cement bags, chemicals or any other toxic or potentially toxic substances within the CEZ.

3.2.8 Once the fencing has been properly installed, the retained arboricultural consultant will visit the site to confirm the correct installation of the fencing.

3.2.9 The installation of the fencing will be photographed and recorded and a record of this will be passed on to the arboricultural officer at the Local Authority.



Fig 2. Signage attached to fencing reinforces the protection afforded by these barriers

3.3 The installation of ground protection

- 3.3.1 The tree protection plan (appendix 1) shows the position of the ground protection measures do be put into place prior to any other works taking place on site.
- 3.3.2 The areas illustrated will be covered by ground protection matting (such as Ground Guards – Maxi Trak Extra Heavy duty), suited to supporting the weight of construction traffic (recommended load bearing 50t – maximum 80t)
- 3.3.3 The separate mats are joined together using joiner kits to lock the panels together.



Fig. 3 Ground Guards – Maxi Trak Heavy duty is ideal for the ground protection required here.

3.4 Demolition

- 3.4.1 The demolition of all of the existing structures will take place before the construction works begin.
- 3.4.2 The demolition procedures are detailed in the Construction Method Statement.

3.5 Site access and the installation of Rootbridge

- 3.5.1 The site is to be accessed by way of the existing entrance off High Street to the north east corner of the site.
- 3.5.2 The driveway shall be constructed using the Root Bridge by Green Grid Systems (see appendix 2). The product is essentially a suspended grid supported by screw piles that enables the whole driveway to sit above ground level.
- 3.5.3 The manufacturers normally suggest the use of the extra heavy duty product for access roads (suitable to take the weight of a fire engine). This would suit this particular case as the extra heavy duty can bear axle weights of up to 11 tons, making it suitable for articulated lorries up to 30 tons.
- 3.5.4 The extra heavy duty model includes a grid system with a beam 15mm thick, onto which the mesh product is then laid. The mesh product is 112mm thick giving a total product thickness of 127mm.
- 3.5.5 Prior to installing the screw piles, on site investigations will be conducted to confirm no large roots will be severed as a result. Site investigations shall include (but not necessarily be confined to) hand digging and/or the use of an air spade to a depth of 300-500 mm (depending on what is found).
- 3.5.6 The screw piles shall be inserted using a small piling rig that shall operate off ground sheet panels, robust enough to take the weight of a small, tracked piling rig. The rig shall work from the outside (roadside) inwards towards the interior of the site, exiting by way of the existing entrance.
- 3.5.7 The panels shall then be installed, again working from the outside towards the interior. Once the root bridge is satisfactorily in position, protective fencing will be realigned along the edges as necessary.

3.6 Foundations

- 3.6.1 The main build will include the excavation of the basement. The Construction Method Statement details how this will be undertaken and confirms that construction activity will remain a minimum 1m from any identified root protection areas.
- 3.6.2 The position of the pad foundation for the cantilevered section of the house shall be investigated prior to be constructed, using an air spade to displace the soil to establish whether or not significant roots (those greater than 25mm diameter) are present within the proposed pit.

- 3.6.3 The pit shall be excavated to a minimum depth of 1m.
- 3.6.4 Where roots of greater than 25mm diameter are encountered further air spading shall not be undertaken, as it will not be appropriate to establish the pad structure in that place.
- 3.6.5 Excavations are to be moved over, adjacent to the original pit to establish the nearest position the pad can be constructed, allowing for the structural requirements of the supporting pillar that is to be built onto the pad.
- 3.6.6 Where smaller roots (less than 25mm diameter) are encountered and root pruning is unavoidable, cuts shall be made at the nearest suitable point in the root system, such as a root junction. Final pruning cuts are to be made at right angles to the axis of the root to leave as small a wound as possible.
- 3.6.7 Exposed retained roots shall be immediately wrapped or covered to prevent desiccation and to protect them from temperature changes. Where wrapping is removed to allow backfilling, this shall be undertaken as quickly as possible.
- 3.6.8 All pruning cuts shall be made with sharp horticultural tools such as secateurs, pruning shears or a saw (not a spade, shovel, pickaxe or mattock) and the final cut shall be as smooth as possible free of jagged edges.
- 3.6.9 Once a suitable pad position is established the excavated hole shall be photographed, as far as possible demonstrating the depth of the excavation, and the findings passed to the council's arboricultural officer for approval.
- 3.6.10 The excavated soil shall then be replaced by placing it into plastic carrier bags that can be lowered into place, to allow for easy removal at a later date when the time comes to construct the pad. Once the position of the pad is agreed with the local authority, the construction can begin.
- 3.6.11 The plastic bags shall be removed along with any loose soil and the sides of the pit shall be lined using a suitable strong PVC sheet. The pit can then be backfilled with a concrete mix and allowed to set in order for the rest of the construction work to proceed.
- 3.6.12 All excavated soil from the foundations will be moved to the front of the site for disposal in skips.

3.7 Mortar mixing

- 3.7.1 Concrete and mortar (when not delivered by cement lorry) will be mixed to the front of the site in a dedicated area.
- 3.7.2 All mortar mixing and handling of any other hazardous materials shall take place outside the rpa's of trees. Water run-off from the cleaning of either a mortar tower or concrete mixers is to be directed away from rpa's and will take place as far from trees as possible.

- 3.7.3 If necessary a confinement area controlling the run-off shall be installed, incorporating an impermeable layer of strong plastic sheeting help within a raised bed. Washing of cement mixers shall take place only within the confined area.

3.8 Storage of materials

- 3.8.1 Materials are to be delivered by way of High Street to the delivery/set down area at the front of the site.
- 3.8.2 Materials can be moved about the site either by fork lift truck, dumper truck, wheelbarrow or by hand.

4.0 Post construction

4.1 Final removal of tree protective fencing

- 4.1.1 Following the conclusion of all construction operations, site huts scaffolding, and protective fencing will be removed to allow for landscaping operations including the laying of the new driveway surface to take place.
- 4.1.2 Great care is needed at this stage from ground work contractors to continue to observe tree protection requirements. No machines are to be used within rpa's which specifically includes rotovators and all new planting and soil level variations must be agreed and supervised by the arboriculturist.

4.2 Installation of cellular confinement system

- 4.2.1 The principles of laying a cellular confinement system are set out in the Arboricultural Association Guidance Note12 'The Use of Cellular Confinement Systems near Trees: A Guide to Good Practice.' Broadly speaking the method followed is replicated each time such a system is installed and is as follows:-
- 4.2.2 The materials for the no-dig pathways shall be delivered to an area adjacent to the site entrance and stored there, ready for moving onto the working area. No machine or vehicle is to move onto the working area at any time prior to the laying of the cellular confinement system.
- 4.2.3 Prior to the laying of the cellular confinement system, the soil will be made level (by building up), removing any vegetation by hand and removing tree roots using a stump grinder if needed. Sharp sand shall be used to ramp up over any protruding roots.
- 4.2.4 Small voids will be filled with clean sharp sand (not builders sand).
- 4.2.5 The use of heavy machinery to install the cellular confinement system shall be avoided to minimise the risk of causing soil compaction within the RPA. The product shall be installed using a wheelbarrow and a shovel.

- 4.2.6 The stone aggregate used to backfill the cells shall be stored within the materials storage area, adjacent of the cellular confinement system.
- 4.2.7 A base geotextile layer made of polypropylene or polyester (min 300g/m²) with a CBR puncture resistance of 4000N shall be laid out covering the entire area to be surfaced. If more than one sheet is needed the sheets shall overlap by at least 30cm.
- 4.2.8 With the geotextile layer laid down, the panels of the cellular confinement system shall be stretched out to cover the area required. The panels shall be held in place using J-hooks (steel reinforcing bars bent into a 'candy-cane' shape) or similar (e.g. construction pins or wooden stakes).
- 4.2.9 Working from outside the no-dig area inwards, the backfill shall be added to create a surface on which workers can then step on in order to continue filling in the product. The backfill shall be made up of a free draining subbase material using crushed 20/40 stone that has been screened and washed. If 20/40 is not available, 4/20 stone can be used provided it has been washed or graded to contain no fine particles (fines).
- 4.2.10 The aggregate shall be overfilled by a minimum 25mm to help to protect the geocells. Where possible vehicle use shall be restricted to outside the RPA but where the use of tracked vehicles across the RPA is unavoidable, vehicles shall continue to work progressively beyond the RPA in order to avoid manoeuvring which could result in distortion of the cellular confinement product.
- 4.2.11 The settlement of the infill material shall be achieved by a minimum of four passes of a smooth roller (max. weight 1000kg/m width without vibration) or alternatively by several passes with a tracked excavator.
- 4.2.12 The cellular confinement system shall be held in place at the edges using a peg and board edging, using thick tanalised boards, spacing the pegs at 1m intervals to prevent bowing.
- 4.2.13 The upper layer shall then be completely covered by a geo-textile fabric with an overlap of at least 20mm at the edges to prevent any particles migrating from the upper surface into the cells. If more than one sheet is needed they shall overlap by at least 30cm. The geotextile layer shall be made of polypropylene or polyester (min 300g/m²) with a CBR puncture resistance of 4000N.
- 4.2.14 The finished surface of the cellular confinement system shall be permeable to allow the continued passage of air and water to the soil below. If necessary fresh geotextile layer shall be laid down (replacing the old one) onto the aggregate of the panel to act as a separation layer to ensure there is no contamination of dust and dirt seeping through from the finished layer to the cells below.

4.3 Site monitoring

4.3.1 It should be noted that British Standard B.S. 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' states at section 6.3 that

'...The project arboriculturist appointed by the developer can help monitor site activity, but enforcement is the responsibility of the local authority.'

4.3.2 The monitoring of the site shall be undertaken by an appointed arboriculturist and shall include site visits to advise and to confirm the correct installation of protective fencing and any other specialist input that may be needed.

4.3.3 Each visit shall be recorded and shall include photographs that are to be shared with the Local Authority. This shall take the form of email communication and if considered necessary, further site meeting with the tree officer.

4.3.4 The monitoring of the site shall be undertaken by an appointed arboriculturist and shall include site visits to advise and to confirm the correct installation of protective fencing and any other specialist input that may be needed.

4.3.5 Each visit shall be recorded and shall include photographs that are to be shared with the Local Authority. This shall take the form of email communication and if considered necessary, further site meeting with the tree officer.

Arboricultural checklist

<i>Ref</i>	<i>Work Activity</i>	<i>Schedule of Works</i>	<i>Refer</i>	<i>Recommendations</i>
General site works and tree related operations				
01	Pre-start site meeting	Pre-start site meeting with LPA tree officer, site manager, client representative and arboriculture consultant to agree scope of any works, where required		
02	Protect trees to be retained	Barriers should be fit for the purpose of excluding construction activity and should remain rigid and complete. Barriers are to be located in accordance with Merewood Tree Protection Plan	B.S. 5837:2012 Trees in relation to design, demolition and construction: Section 6.2.2 Merewood Tree Protection Plan	Ongoing monitoring by appointed person
03	Protective fencing to be inspected by LPA (if required)	Contractors to give LPA at least 2 working days' notice of the erection of the temporary protective fencing.		Appointed person to contact LPA prior to completion of fencing.
04	Maintain the temporary protective fencing	Contractors to ensure the temporary protective fencing is maintained throughout the entire construction period and record any breach of the tree protection.	B.S. 5837:2012 Trees in relation to design, demolition and construction: Merewood Tree Protection Plan	Appointed person responsible for arboricultural protection measures shall monitor fencing monthly, recording details
05	Works within the Root Protection Area (RPA)	Use of screw piles to minimise root damage including the installation of 'Rootbridge'	B.S. 5837:2012 Trees in relation to design, demolition and construction: Section 7.5 Merewood Tree Protection Plan	Piling work to be undertaken by a specialist contractor
06	Air spade investigation	Contractor to excavate soil to establish appropriate piling positions	B.S. 5837:2012 Trees in relation to design, demolition and construction: Section 7.2.1	Monitoring undertaken by arboricultural consultant
07	Works within the Root Protection Area	Adopt hand dig methods for reducing levels to avoid damage to roots. Where limited	B.S. 5837:2012 Trees in relation to design, demolition and construction:	All tree work should be carried out by a suitably tree qualified tree surgeon,

	(RPA) – digging of pad foundation	<p>root pruning is unavoidable it should be made at a suitable place within the root system, avoiding damage to surrounding tissue. Final pruning cuts shall be made at right angles to the axis of the root. The final cut wound should be smooth and as small as possible, free from ragged torn ends. Where root pruning is required to roots over 25mm in diameter, works should be overseen by a suitably qualified Arboriculturist. Any root pruning should be completed in accordance with BS 3998:2010.</p>	<p>Section 7.2</p> <p>Merewood Tree Protection Plan</p>	preferably an Arboricultural Association approved contractor.
--	-----------------------------------	---	---	---

Signatures:

I confirm that I have attended a pre-commencement site meeting with the contractors and have gone through the requirements of the Arboricultural Method Statement and that a copy is available in the site office.

Arboricultural Consultant

I confirm that I have attended a pre-commencement site meeting with the arboricultural consultant and that I am responsible for the correct procedures being followed in accordance with the Arboricultural Method Statement and that a copy is available in the site office.

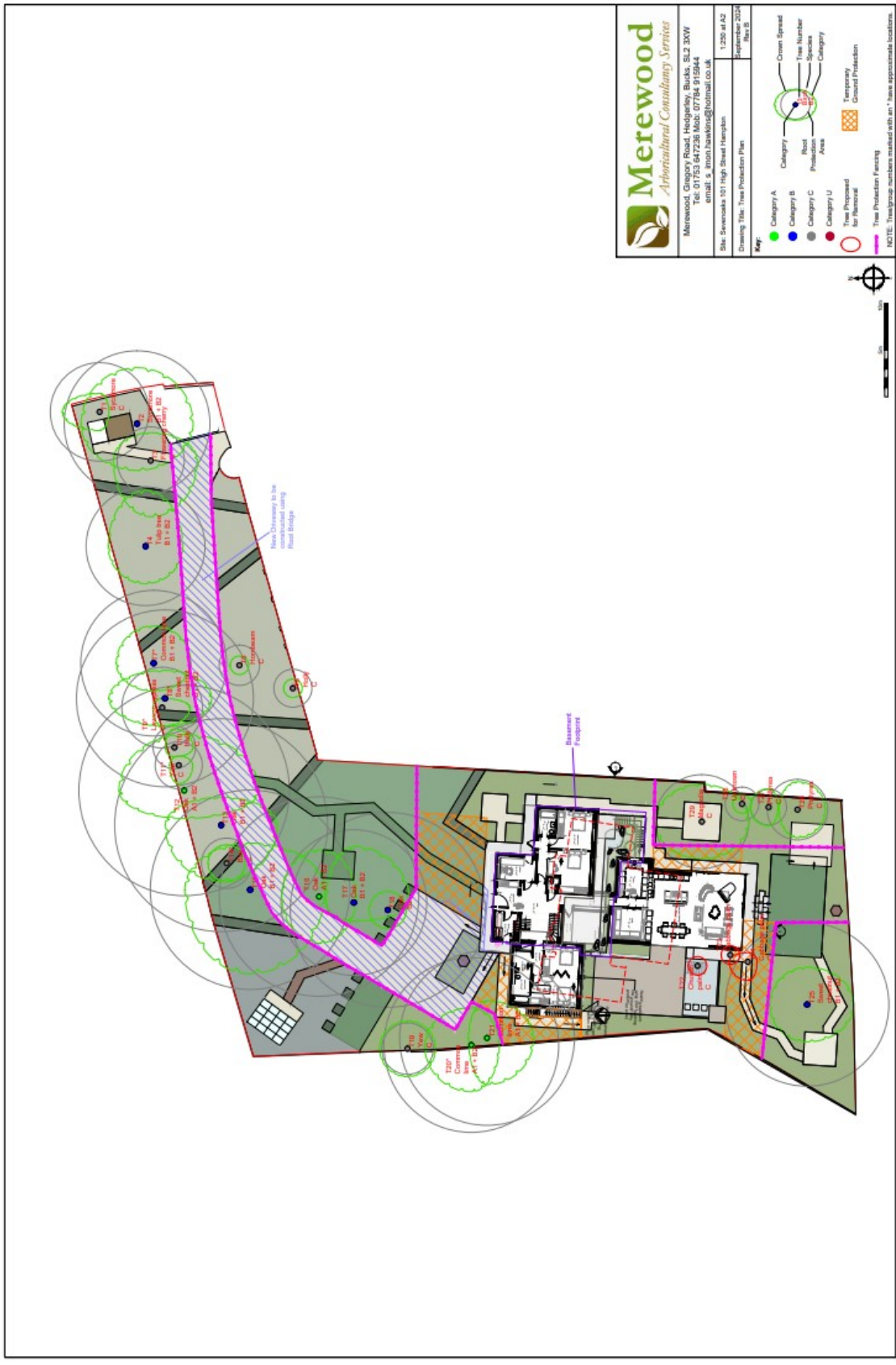
Site Manager/Foreman**Contact details:**

Simon Hawkins – Arboricultural Consultant 07784 915 944

Architects– Holland and Green 01844 390381

London Borough of Richmond Council – Planning Offices 020 8891 1411

Tree Protection Plan

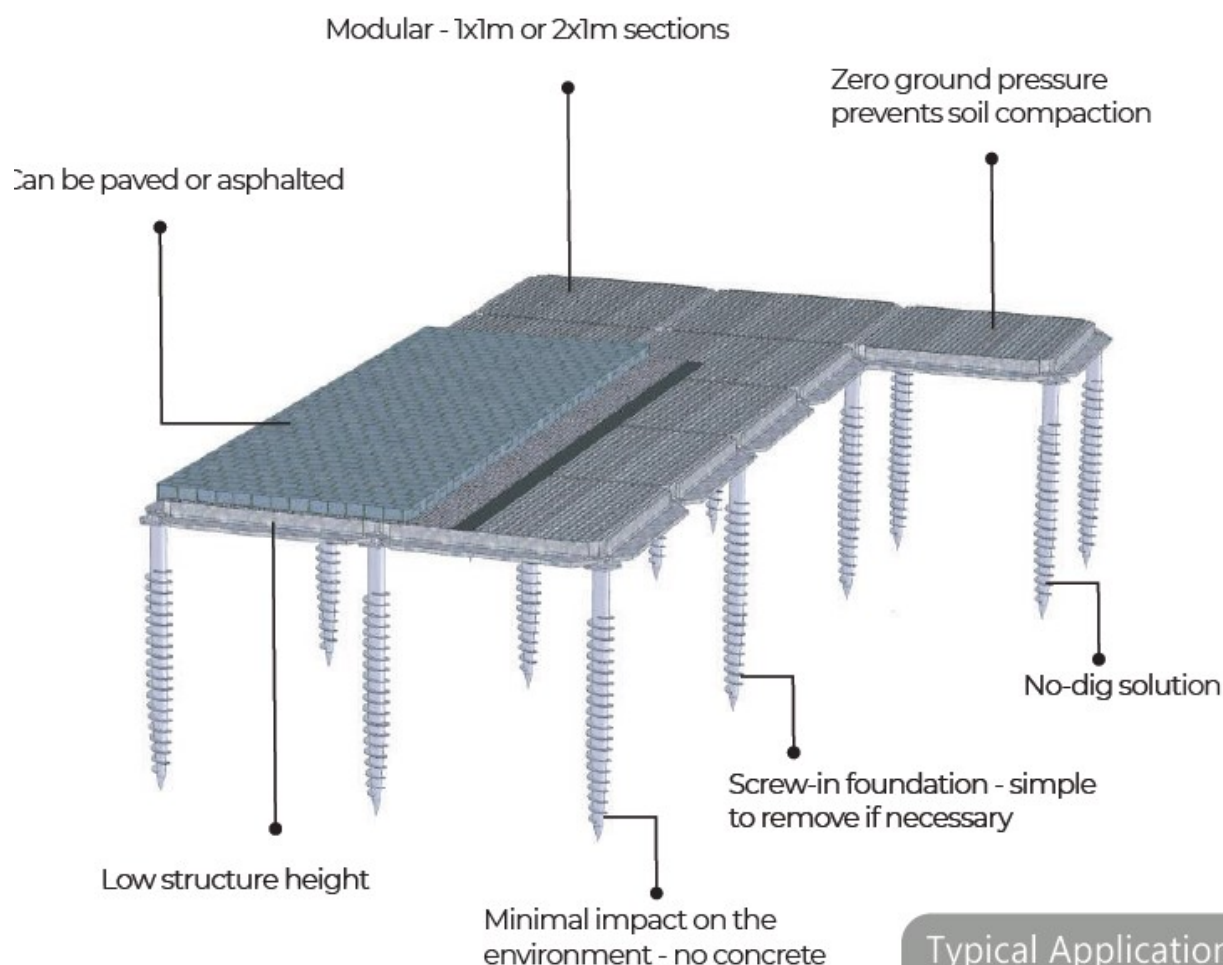


Appendix 2

Root Bridge by Green Grid

What is RootBridge?

The RootBridge System is a steel frame construction, that essentially bridges the RPA of the tree. The main platform area of the system sits on a foundation of groundscrews, ensuring a no-dig, no-concrete and no soil compaction solution.



Typical Applications

- Carparking areas
- Walkways
- Driveways
- Access roads



GREEN GRID SYSTEMS
INNOVATIVE TREE ROOT PROTECTION

+44 (0)1962 433460
info@greengridsystems.com
www.greengridsystems.com

The Nursery, Littleton Lane, Nr Sparsholt, Winchester, SO21 2LS