

Method Statement

Installation of screw piles and RootBridge®

Green Grid Systems The Nursery, Littleton Lane, Winchester, SO21 2LS

Project/Contract	
Contractor	
Site Address	
Project Expected Start Date	
Expected Duration	
Project Expected Completion Date	

	Name	Title	Signature	Date
Document Author	C R Holmes	M.D		11/08/20
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Authorised by				
Authorised by (for Client)				

Emergency Contact Details			
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The following method statement has been developed to provide a safe system of work and must be adhered to at all times, any significant deviation from this system must first be authorised by your manager or safety representative. **Please read the entire sheet before beginning the procedure, if you have any questions please contact your manager or safety representative.**

The main hazards to your safety and health are;

- a) Contact with live services underground.
- b) Falls into trenches, equipment falling (if applicable).
- c) Injury to operators and others from contact with heavy machinery.
- d) Injury from incorrect Manual handling.
- e) Injury from slips trips and falls.
- f) Risks from Leptospirosis (Weil's disease) and other waterborne diseases.
- g) Injury from the incorrect actions of other contractors on site.
- h) Injury to members of the public during operations.

Preventative Measures you must take;

- a) You must be "competent" to carry out the task.
- b) You must NOT carry out this task alone.
- c) Barriers erected at entrances and around the work area if deemed necessary by the foreman or safety officer.
- d) You must not lift beyond your capabilities, get help if necessary.
- e) Visitors and other members of staff are prohibited from entry unless accompanied by competent person, all visitors issued with personal protective equipment.
- f) You must hold the appropriate license and training for operating machinery.
- g) You must read and understand the information sheet on Leptospirosis (Weils Disease).

Personal Protective Equipment you must wear;

- a) Hard hats.
- b) Hi-visibility vests.
- c) Safety boots.

Environmental Protection Measures you must take;

- a) You must dispose of waste and spoil to the designated area or skip provided for waste.

Quality Control

- a) Adhere strictly to the following procedure to ensure quality of service
- b) If in doubt contact your manager for clarification before proceeding.

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Staff & Training

The projects will be carried out by competent ground workers with necessarily certifications. A site manager will be appointed to each contract that will be responsible for quality and safety. Apprentices and young workers will be supervised and are not allowed to carry out tasks for which they have not been trained.

PPE

All site workers will wear Hard Hats, Safety boots, hi visibility vests and protective clothing, at all times, other items of PPE such as eye protection, and gloves are available to be worn as and when necessary.

Preparation & Induction

All members of staff required to work on this contract will be given copies of risk assessments and method statements, any queries or concerns will be raised with the contract manager who will ensure it is dealt with. Staff will be inducted onto each site by the principal contractor or contract manager, and will follow all site rules and safety procedures.

Welfare

The principal contractor is responsible for providing adequate washing, toilet, drying and refreshment facilities for staff and sub-contractors, staff and contractors are responsible for ensuring that such welfare facilities are maintained in a clean and wholesome manner.

First Aid

It is the responsibility of all sub-contractors to ensure adequate first aid provision for its staff; Adequate means provision of suitable first aid equipment and the provision of an appointed person at the minimum.

Material Handling

All materials required for site will be unloaded to a designated unloading and storage area which will be away from the work area as far as is practicable. This area will be kept tidy to minimise trip hazards. Materials as and when required will be collected from the storage area to the work area. All staff will take care when handling materials.

Manual Handling

All staff and contractors have been instructed on the potential dangers of manual handling, and have received manual handling training. Staff and contractors will not lift items of tools or equipment beyond their capabilities. Heavy or awkward items will be broken down into smaller units or dual lifted where this is not possible. It is the responsibility of the site foreman to identify and control potentially dangerous manual handling situations as they occur on site on a day to day basis

Waterborne Diseases (leptospirosis)

Waterborne diseases may be present in the areas of work made worse by the mists that are produced during water jetting. Leptospirosis is present in various animals but is widespread in the rat population and is spread in rat's urine.

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It gains entry into the body usually through cuts but can get in through the mouth and eyes, therefore all staff are required to wear adequate PPE when carrying out water jetting and observe good personal hygiene practices. Any cases of flu like symptoms must be reported immediately to a medical professional who must be informed of the type of work that is carried out.

Good standards of hygiene will be maintained prior to eating and drinking and all staff must read and be familiar with the Leptospirosis fact sheet.

Machinery Safety

Specific Hazards of working with Heavy Machinery

- Workers on foot are struck by equipment, usually when it's backing up or changing direction.
- Equipment rolls over and kills the operator while on a slope or when equipment is loaded or unloaded from lorries.
- Operators or mechanics are run over or caught in equipment when the brakes aren't set, equipment is left in gear, wheel chocks are not used, or the equipment and controls aren't locked out.
- Workers on foot or in a trench are crushed by falling equipment loads, backhoe buckets, or other moving parts.
- Mechanics are killed when working alone on machinery in the event of malfunction

Identify any underground services and ensure they are moved, capped or otherwise made safe prior to starting work and always follow these safe procedures;

- **Review** operating, safety, and shutdown procedures in the operator's manual before you work with a new piece of equipment.
- Make sure the manufacturer's **safety features** work.
- To **prevent slips and falls**, keep grease and fluids off the walking/working surfaces and use 3 points of contact when entering and exiting equipment (such as 2 hands and 1 foot).
- To **prevent rollovers**, do not travel or work parallel to steep grades or embankments or on unstable soil.
- If possible, operate heavy equipment that has a ROPS and fasten the seatbelt. (Don't use a seatbelt if you must use equipment that has no ROPS, because you may have to jump clear during a rollover.)
- If equipment is rolling over or out of control, do not jump if it has a ROPS and seatbelt; you have a better chance of riding it out with a ROPS and your seat belt fastened.
- Always put the transmission in park, shut off the motor, set the brakes, and perform any other needed **shutdown procedures**/lockout of controls and/or attachments before working on or around the equipment.
- **Do not** back up unless you are sure no one is behind you. Use mirrors, where appropriate.
- **Do not** depend only on backup alarms. They are not always heard on noisy construction sites.
- Use barriers to separate workers on foot, pedestrians, and vehicles from moving equipment, where possible.
- When loading or unloading materials, make sure that only essential workers are in the area and have a spotter/signal person to let you know where they are. No one should be under a suspended load.
- **Never** allow other workers to ride on equipment.

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Method Statements

Task Description: Screw pile installation

Preparation:

- 1) Load all equipment required for job.
- 2) Carry out vehicle safety checks.
- 3) Transport equipment to site.
- 4) Report to site foreman and receive permit to work (where required).
- 5) Put on personal protective equipment.
- 6) Inform all other contractors in area of start of works.
- 7) Liaise with the principal contractor and other contractors to ensure safe operation.
- 8) If required cordon off work area.
- 9) Ensure the area to be worked and exit points are clear of obstruction.
- 10) Ensure that safe access and egress is maintained.
- 11) Locate any drawings/site plans of existing ground.
- 12) Determine location of underground services.
- 13) Prepare area for ground screw installation by clearing obstructions, debris etc.
- 14) Ensure ground screw installation will not undermine nearby structures.
- 15) Install temporary ground protection in the areas identified to allow access for the installation machine.
- 16) Temporary ground protection to be specified by the Arboriculturalist; typically a geotextile membrane topped with a minimum depth of 100mm compressible fill (such as wood chip). Proprietary ground protection panels such as Greentek ground guards shall be placed over the compressible fill and fixed together with pins.

Ground screw installation:

- 1) Mark out areas for ground screw installation with biodegradable marker paint using the pile map provided by Green Grid Systems. The temporary protection may need adjusting in
- 2) As a double check carry out CAT scans of ground to check and locate live services.
- 3) Arrange for existing live services to be shutdown where possible.
- 4) Ensure that any nearby deep excavations are cordoned off with secure barriers.
- 5) Bring machinery onto site following safety procedures listed above, and keeping to the temporary protection.
- 6) Where live services have been located machines must not install ground screws within 1 meter.
- 7) Non driving operative to bring ground screws to site one by one for installation.
- 8) Attach ground screw to drive head of the installation machine using supplied nuts and bolts, procedure undertaken by the by both machine driver and non-driving operative.
- 9) Install ground screw.
- 10) Repeat procedures 8, 9 and 10 until full site installation is completed.
- 11) Each installed ground screw to be marked as installed by hazard tape.
- 12) On completion remove installation machine plus any associated tools and debris from site.
- 13) All installations must be left safe at the end of each shift.

Beam and grid installation:

- 1) Two non-driving operatives to bring the beams onsite.
- 2) Beam structure to be assembled on top of the pile heads.

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- 3) Bolt holes alignment checked, and the structure adjusted or drilled to suit.
- 4) Structure to be bolted together ensuring it is correct to drawing.
- 5) Two non-driving operatives to bring the grids onsite.
- 6) Temporary protection is to be removed before the grids are installed.
- 7) The grids to be laid on the system and secured using supplied screws.
- 8) Upon completion all tools and associated debris removed from site.
- 9) All installations to be left safe at the end of each shift.

Emergency Procedures:

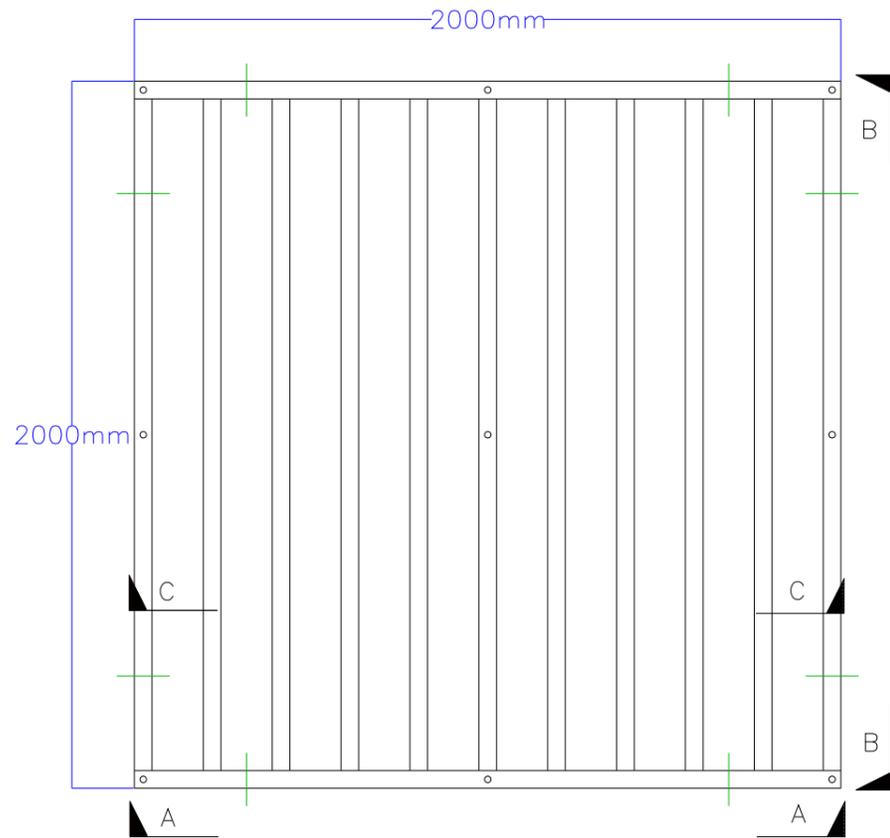
Emergency contacts must be available on site and a site emergency plan provided to deal with issues such as contact with live services, flooding, trench collapse etc.

Method statement complete.

Colin Holmes.
Green Grid Systems

Notes:

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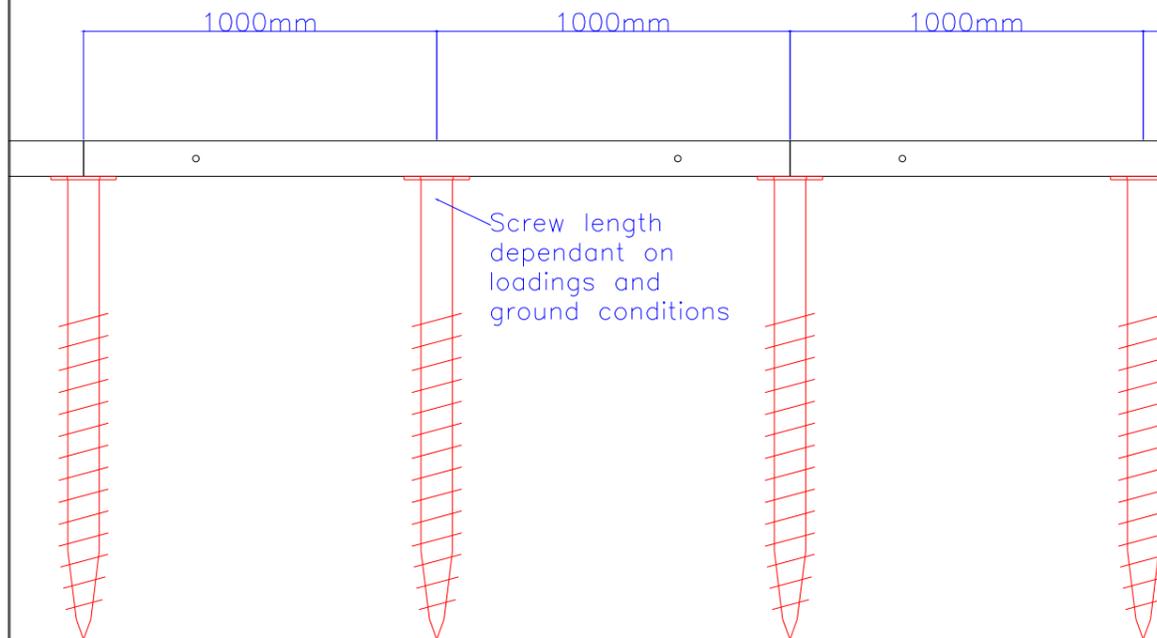
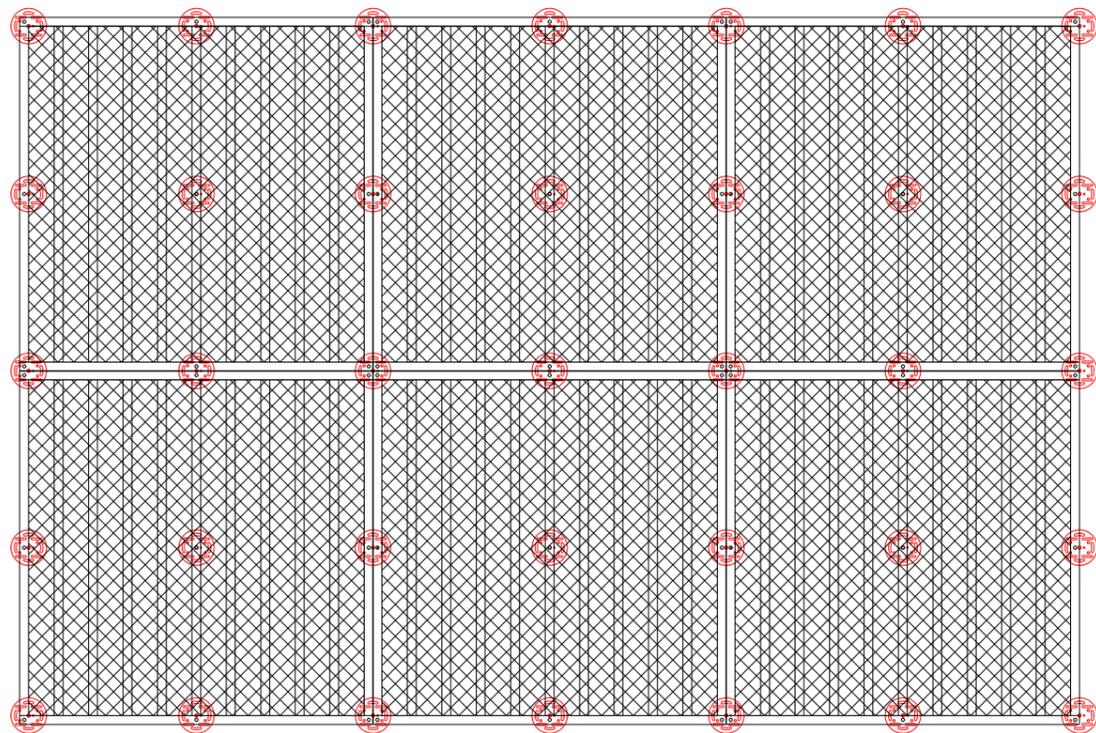
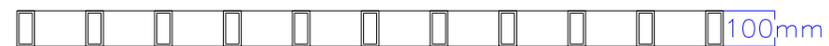
Section A-A



Section B-B



Section C-C



C	-	-	-
B	-	-	-
A	INITIAL DRAWING	-	-
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

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CLIENT:

ARCHITECT:

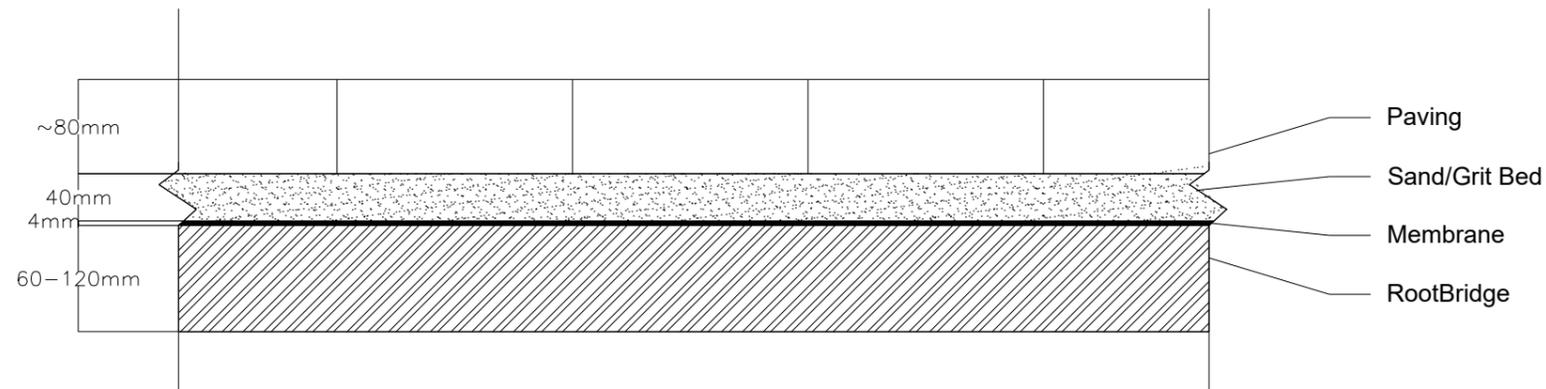
SITE:

TITLE: HD 50kN 2M PANEL W/O CROSS BARS

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
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PROJECT NO:	DRAWING NO:	REVISION:	
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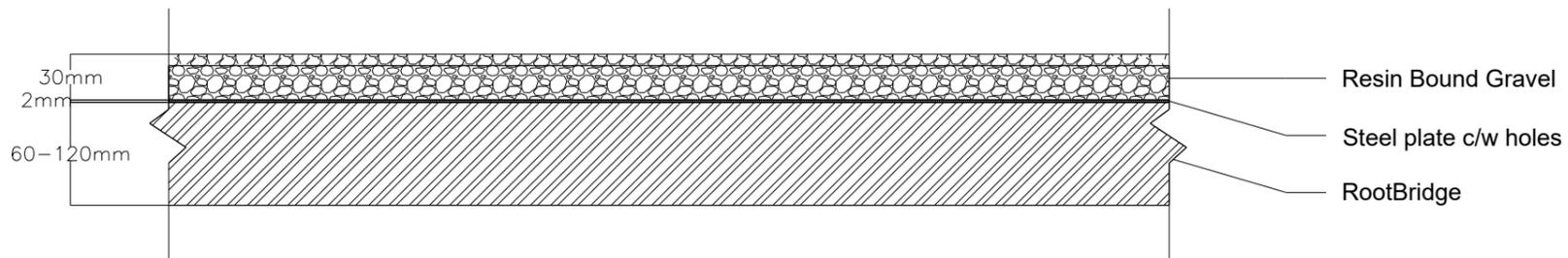
Standard build-up for Block paving

Scale 1:6 @ A3



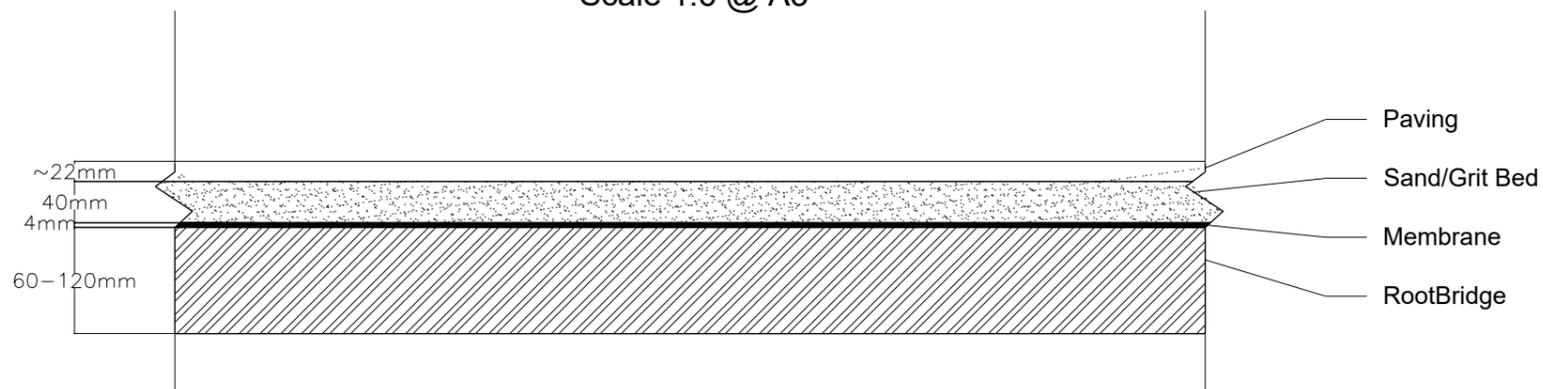
Standard build-up for Resin bound

Scale 1:6 @ A3



Standard build-up for paving

Scale 1:6 @ A3



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C	-	-	-
B	-	-	-
A	INITIAL DRAWING	-	-

REV:	DESCRIPTION:	BY:	DATE:
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STATUS: CONSTRUCTION ISSUE

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CLIENT: -

ARCHITECT: -

SITE: -

TITLE: BUILD-UP DIAGRAMS

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
1:6	05/09/16	DJ	DJ
PROJECT NO:	DRAWING NO:	REVISION:	
-	GGG-090916	A	

Access Road created over the RPA

RB heavy duty used to create a driveway for nine dwellings and a public house at a project in York

Rootbridge heavy duty is designed for overrun by vehicles up to 30 ton. This made it the solution of choice for a development in York, where planning constraints called for the protection of three mature and established lime trees. The access roads connect the existing highway to the development, and consist of two 10m sections at a slight gradient into the site.

Due to the gradient, our pivot system was used, which allows flexible adjustment in the final angle (based on the pile heights) and contributes to greater flexibility in the pile placement. The system here used 148 piles and has an approx. combined weight of 10 ton. The piles lift the entire structure off of the ground to ensure there is no compaction in the RPA, and anchor the system to the ground ensuring the roadway won't be pushed up over time due to growing tree roots.

The steel frame of the system was overlaid with block paving following the install, and curved edging was supplied to support the paving and provide the form for the finished road. As the system is raised off the ground, soil will be ramped up to the edging to hide the steelwork, or the levels around brought up depending on the tree officers decision.

The final structure is completely porous - water can flow between the joints in the paving, through the grit base and the membrane, then out through the mesh grids that sit on the beams. This ensures the construction has minimal impact on the trees and their environment.



Driveway created over the RPA

RB heavy duty used to create a driveway for five dwellings at a project in Winchester, Hampshire.

The basis of this project was a driveway through the RPA – this being the access granted at planning stage to the five new dwellings onsite. Our involvement didn't start until the houses were completed, it was at this point they found that their original plan to use a concrete slab set on concrete piles wouldn't work. There is a gradient across two planes where the driveway slopes up from the road, and we were able to modify our heavy duty system to accommodate this – something that wasn't achievable with the concrete option they had originally chosen. The final solution consisted of our heavy duty system, which is rated to take vehicles up to 30 ton, with stub legs set at specific angles and heights to connect to the piles and manage the gradients.

The system in this project was left as a mesh finish at the client's request, with a heel friendly mesh size and anti-slip serrations. The remaining RPA area between the system and the rest of the driveway was finished with 200mm deep geocells.

Temporary ground protection was used onsite when tracking the machine through to install the screws. These were 2100mm long to meet the high load requirement of the system.

The final system allows access for vehicles up to 30 ton whilst not compromising the soil conditions around the trees while the open grid allows the natural transfer of moisture and air to continue unimpeded.

