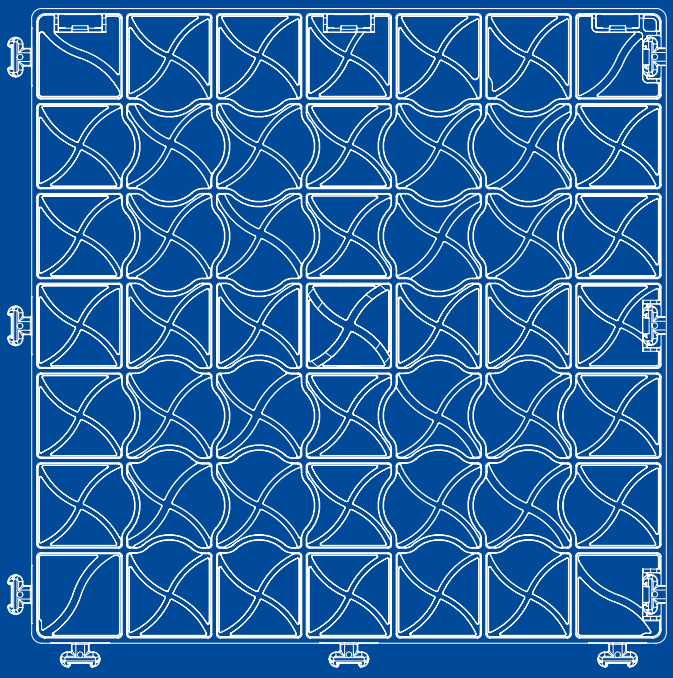
INSTALLATION MANUAL

Dak-Rock® Heavy



DAKOTA®

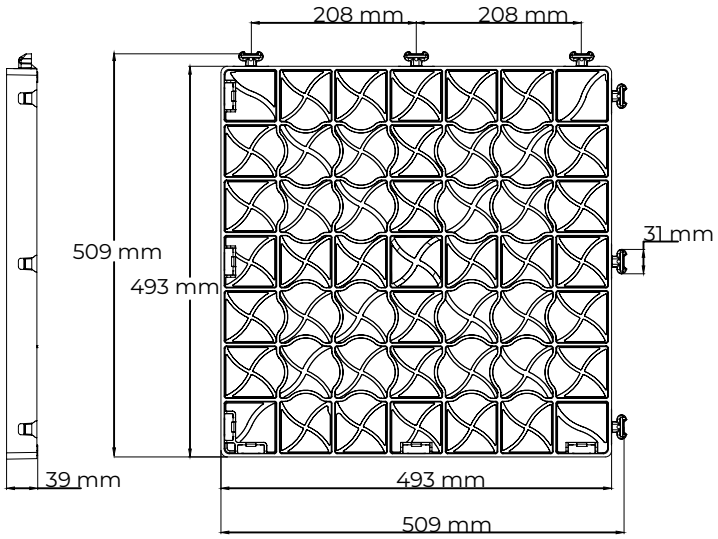
DAK-ROCK® HEAVY - GRAVEL STABILISER GRID

DESCRIPTION

Dak-Rock Heavy is a plastic gravel stabiliser grid designed as a ground reinforcement paving system. It is engineered to improve natural water drainage while also preventing soil erosion.

It is a perfect alternative to bricks, block pavers, stone slabs, perforated paving slabs, and various types of cement-based surfaces.

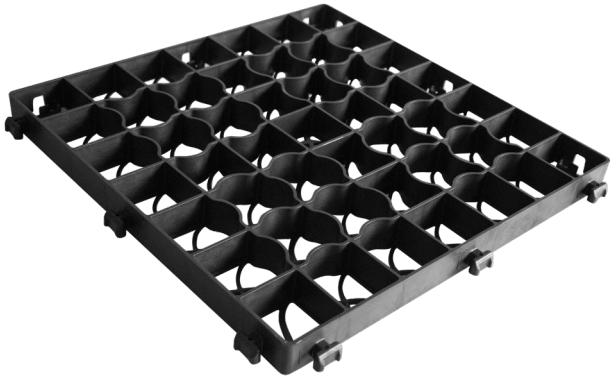
The innovative interlocking system allows you to connect the panels and create a continuous surface, which becomes completely invisible once filled with aggregate or grass, preserving the natural character of the area.



MATERIAL

100% recyclable PP (polypropylene).

Available in two colours: black and green.



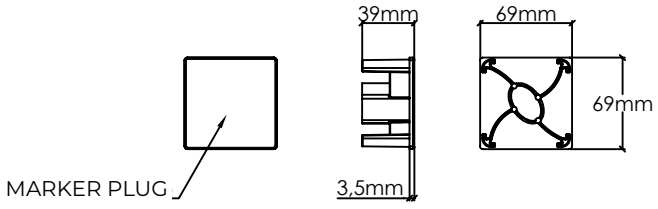
USE

Used as a gravel stabiliser and for reinforcing grassed areas intended for car parking and/or recreational and waiting areas.

PARKING MARKER FOR DAK-ROCK HEAVY

DESCRIPTION

A modular component for creating marked lines on gravel stabiliser grids, suitable for marking out public/private parking spaces and reserved areas.



MATERIAL

PP (Polypropylene).

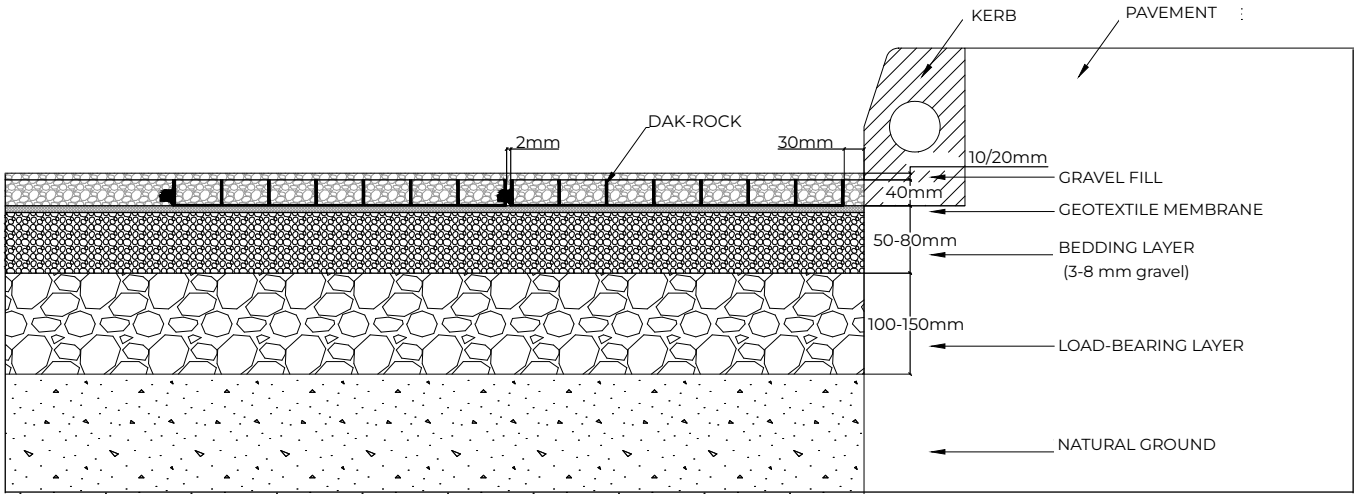
USE

To clearly and visibly mark out parking bays on gravel stabiliser grids.

1. PREPARING THE BASE

Layers for a gravel base

Laying on gravel surfaces requires preparing the base by excavating and creating a load-bearing, draining layer of crushed stone. This layer may need to be separated from the subsoil with geotextile, and its thickness should be determined based on the expected traffic weight. Over this, spread a 5–10 cm bedding layer of fine gravel, compact it thoroughly, and level it.

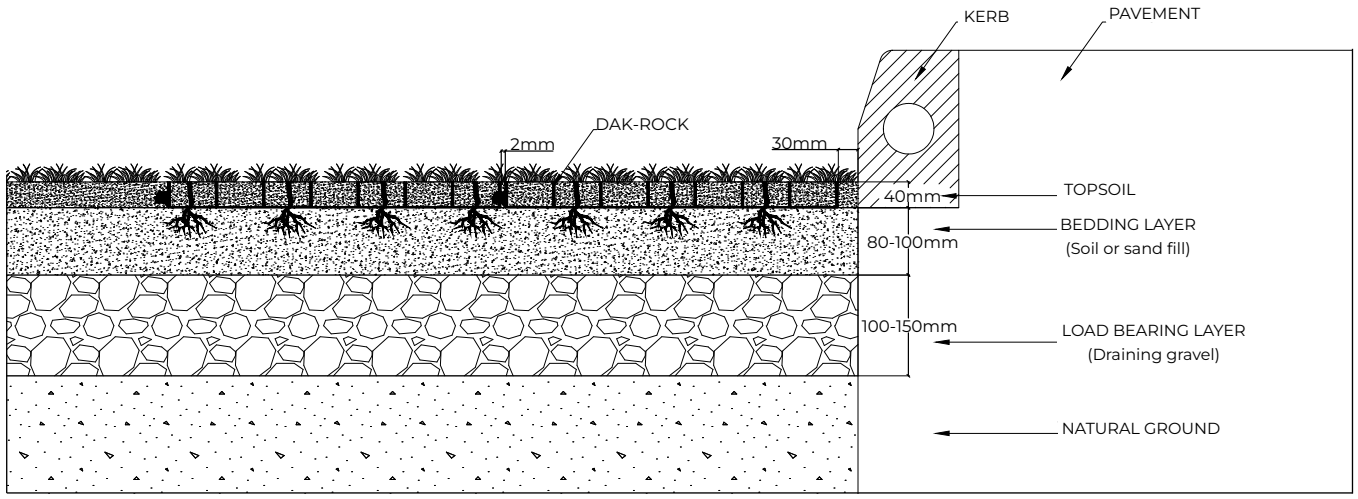


Note:

The use of a geotextile (TNT) barrier is typically intended to separate soil layers with different grain sizes, with the secondary function of limiting weed growth. However, its use is not universally recommended because, over the long term, the geotextile can become clogged due to a build-up of fine particles, heavy materials, and organic debris. This progressively reduces permeability, compromising soil drainage and aeration. The decision to use this solution is therefore optional; if it is used, the project's layered structure must be adjusted accordingly.

Layers for a grass base

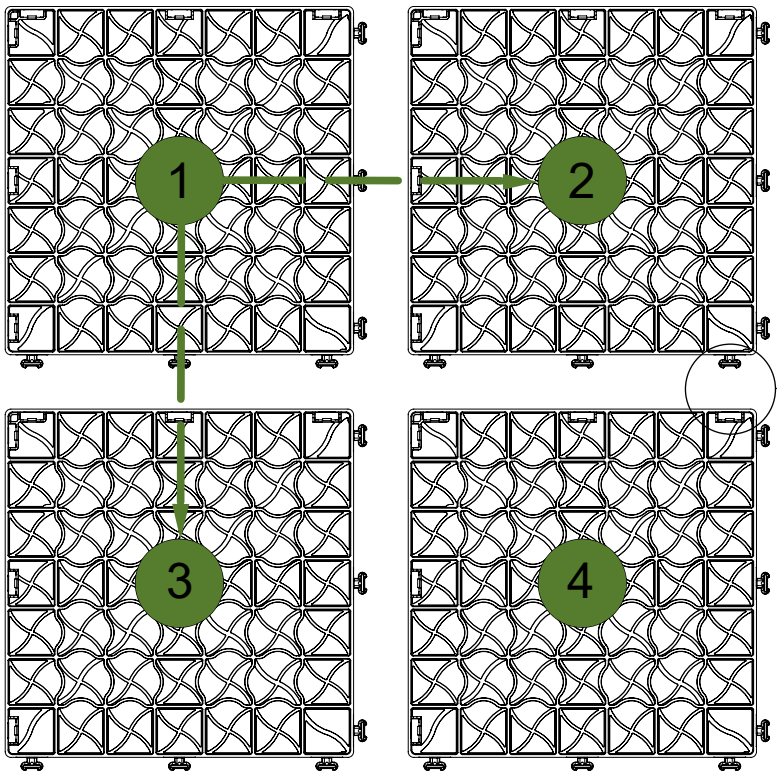
Laying on grass surfaces requires creating a draining sub-base of compacted crushed stone, followed by a bedding layer of volcanic or silica sand, carefully levelled.

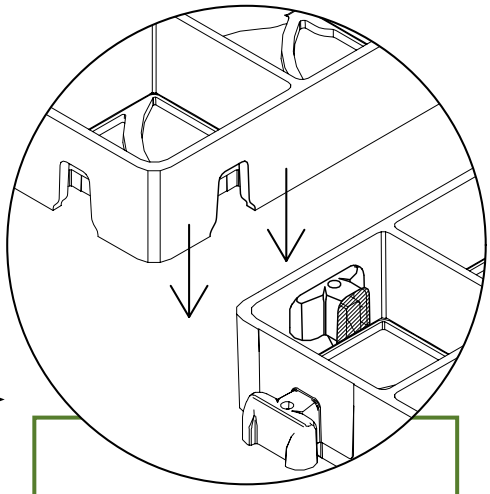


2. LAYING THE PANELS

The panels should be laid following the sequence shown in the diagram. The first panel must be oriented with its female connector sides facing any surrounding kerbs or low walls, so that the male connectors are available for attaching the subsequent panels.

(e.g. 1-2-3-4 o 1-3-2-4)

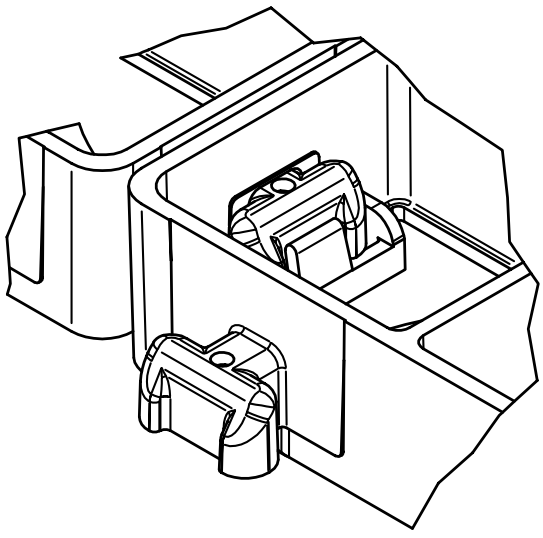


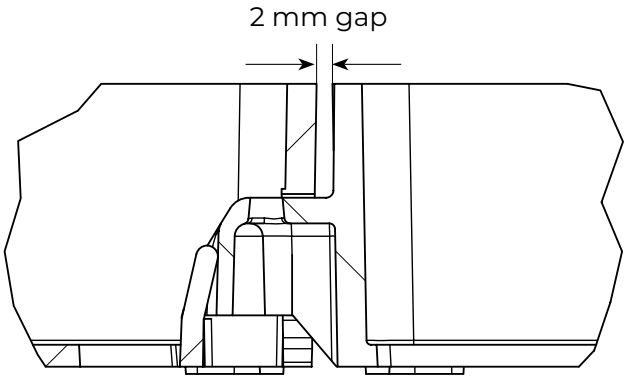


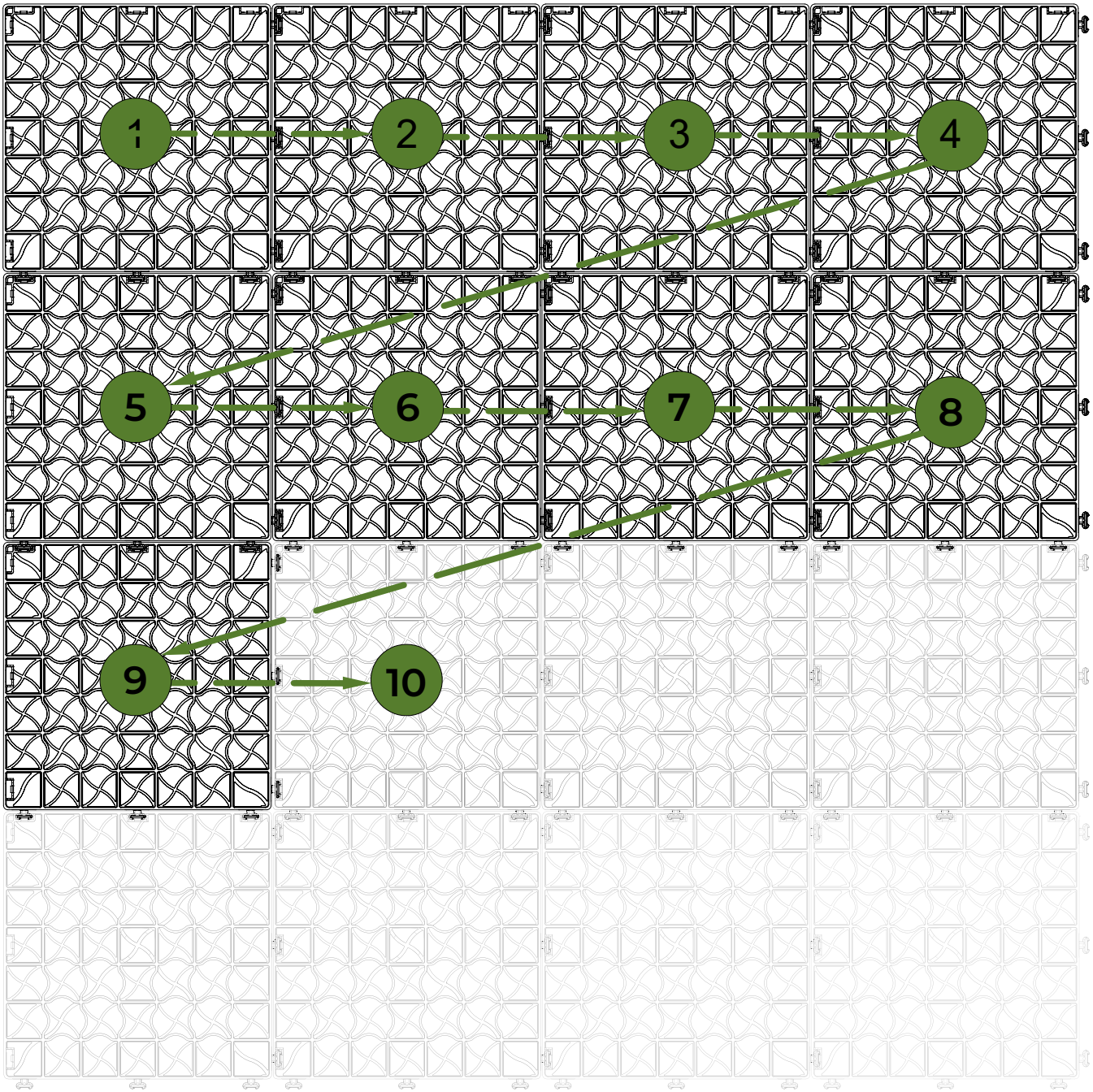
The grid modules are joined together using an overlapping system: for correct installation, position the female connector over the male connector and press down until it is fully engaged.

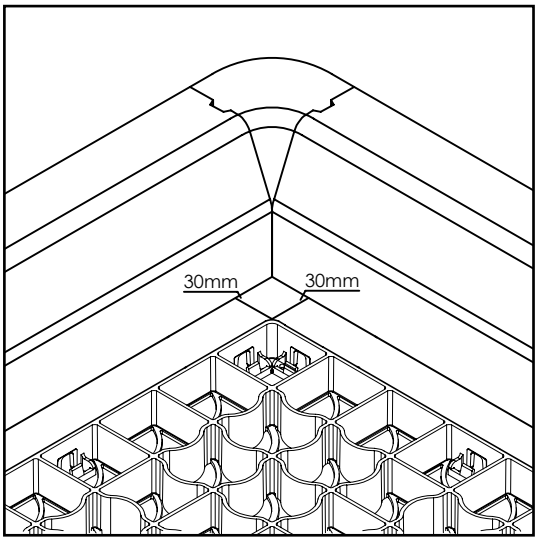
PATENTED

The patented fixing system integrates a dynamic compensation technology designed to absorb thermal expansion of up to 2 mm, eliminating mechanical stress on the components. This solution prevents structural deformation caused by temperature fluctuations, ensuring dimensional stability and superior operational longevity of the system.







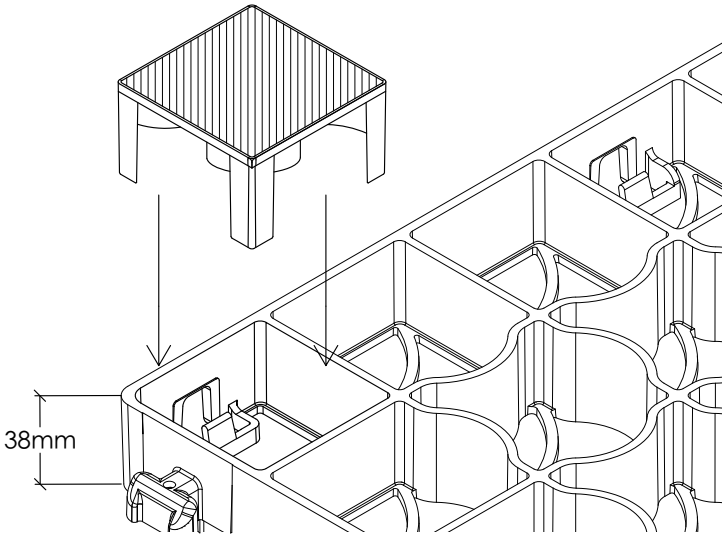


It is recommended to maintain a distance of 30 mm from kerbs or walls to allow for thermal expansion, preventing deformation and surface irregularities over time. The grids can be cut to shape if necessary.

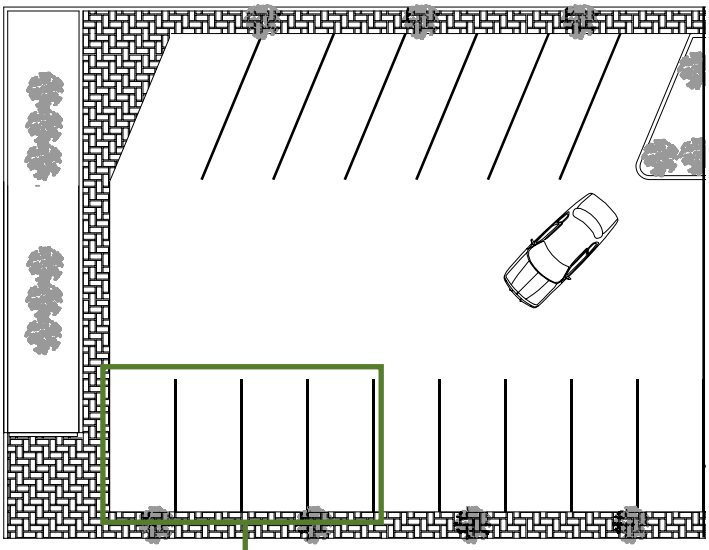
3. INSERTING PARKING MARKERS

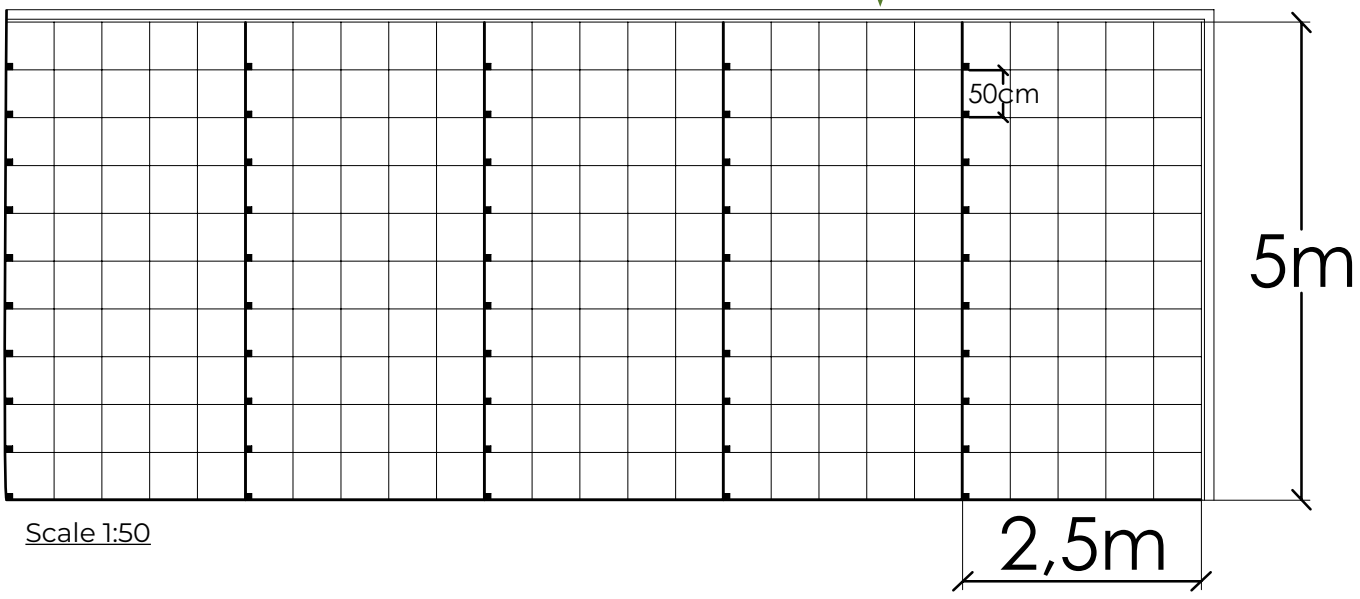
After laying the grids and identifying the cells to be marked, the marker plug is inserted manually with light pressure.

The plugs can be fitted into ANY cell of the grid, guaranteeing maximum flexibility when defining the markings.



e.g. In this specific case, considering a rectangular parking space measuring 2.5 x 5 m, to clearly and visibly mark the area, a marker element is inserted in the bottom corner of each grid, at 50 cm intervals along the entire perimeter of the parking space.



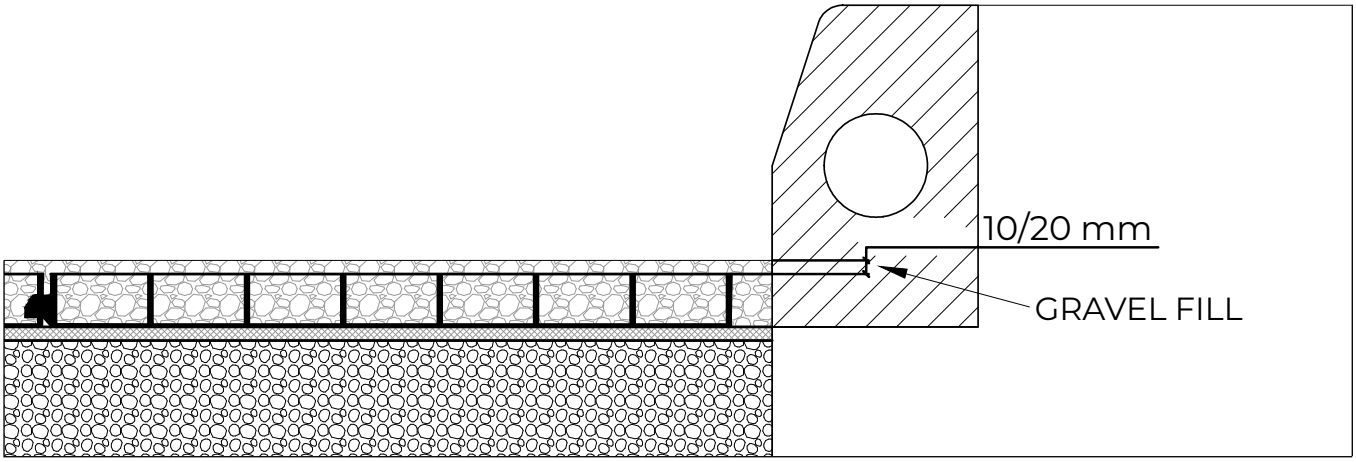


Scale 1:50

4. FILLING

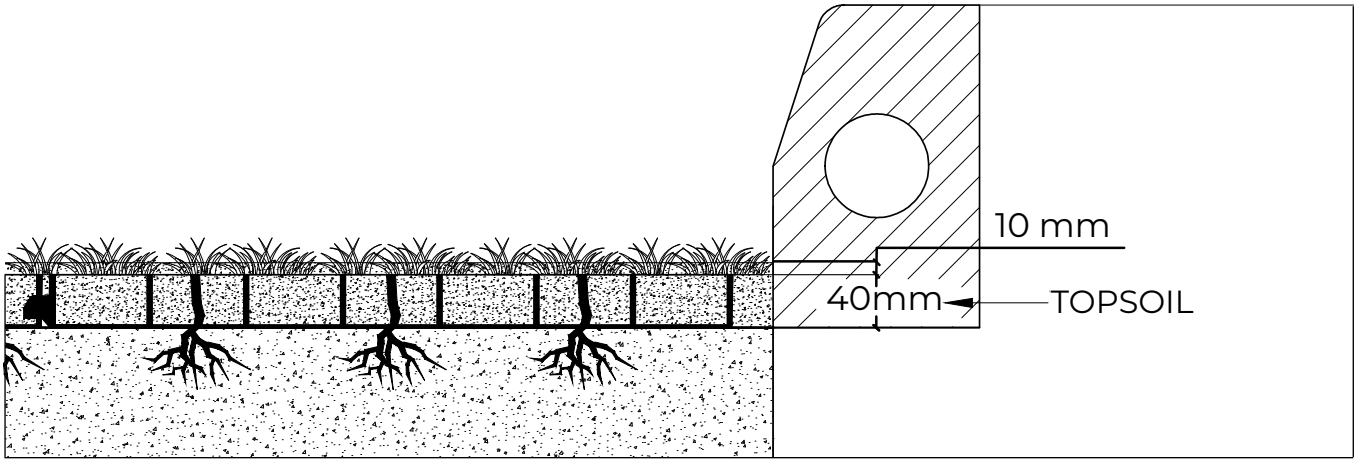
Filling the grid with gravel

For filling Dak-Rock, it is recommended to use gravel or chippings with a size of **4 to 25 mm**. After filling the grid, add an extra **10-20 mm** layer of gravel on top (overfill). Compact this with a vibrating plate to stabilise it and make up for any settlement caused by vehicles. This process prevents the grid from becoming visible, stops the gravel from shifting, and ensures a smooth, even draining surface.



Filling the grid for a grass finish

Fill the cells with topsoil to **80-90%** of their height, or right to the top with a **10 mm overfill** to allow for growth. Compact lightly, sow the grass seed, and wait for it to establish. This method protects the roots from tearing and suffocation, avoiding excessive compaction.



5. INSTALLING ON SLOPES

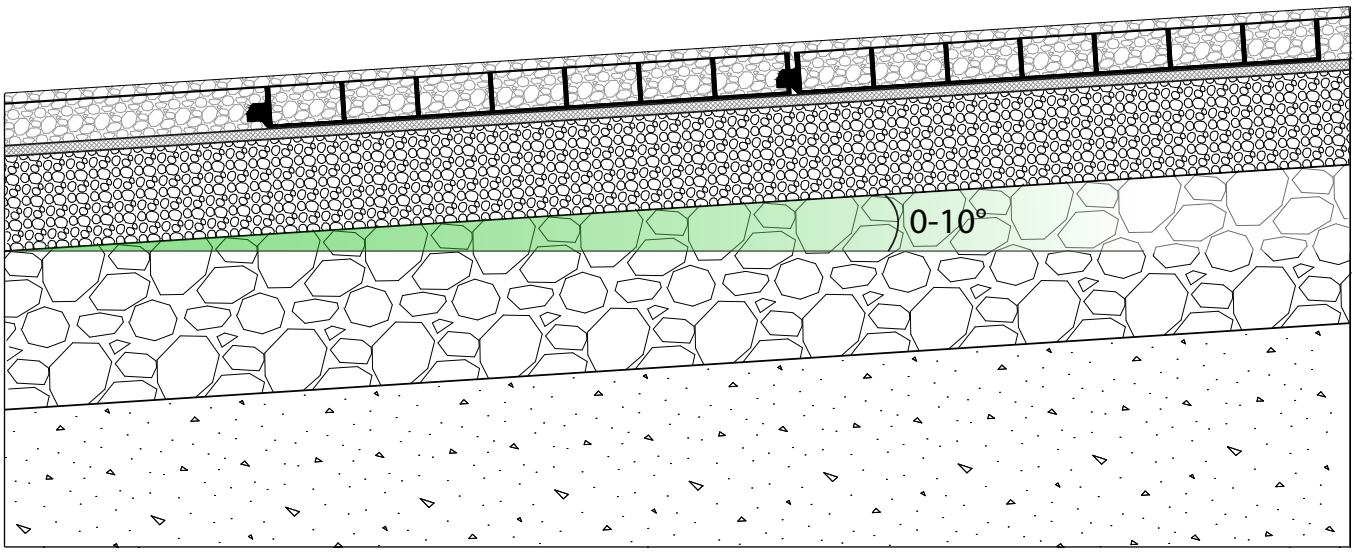
1. Installing on a slope with a gravel base

- **Slopes between 0 and 4%:** Installation can be carried out without needing special anchoring or containment systems, following the standard technical instructions. However, it is essential to use angular, stabilising gravel of the right size to ensure it locks together properly within the grid cells.
- **Slopes between 4% and 10%:** Installation is only recommended when using suitable containment and/or anchoring systems, which are necessary to keep the grid stable. However, when using Dak-Rock Heavy with a gravel base on a slope over 4%, there is a risk of both aesthetic and functional problems. The gravel will gradually migrate downhill over time due to vehicle traffic and heavy rain. This will empty the cells at the top of the slope and cause gravel to build up at the bottom. This process leads to visible deterioration that isn't immediately noticeable during installation but becomes obvious with use and exposure to weather.

Containment and anchoring methods:

Method	Description
A. Check dams	Kerbs or transverse retaining elements installed every 3 linear metres.
B. Mechanical anchoring	40 cm metal stakes, driven in every 100 cm along the line of the steepest slope.

- **Slopes greater than 10% – Not Recommended:** Using the grid with a gravel base on slopes steeper than 10% is not recommended for the following reasons:
  - *Compromised geotechnical stability:* The excessive slope increases water flow and the washing away of fine material within the buried layers, risking the overall stability of the grid and the slope itself. This raises the risk of erosion and the entire system slipping.
  - *Difficulty maintaining fill:* The steep angle makes it impossible to fill the cells evenly, leading to inconsistent gravel distribution and gradual emptying of the cells due to heavy rain or continuous traffic.
  - *Risk of cell breakage:* Cells can be subjected to excessive shearing forces if they become partially empty.
  - *Risk of system slippage:* The weight of the grid itself, plus any loads on it, can cause the whole system to slide downhill, potentially requiring non-standard containment solutions.



2. Installing on a slope with a grass surface

- **Slopes from 0% to 8%:** Installation can be carried out without needing special anchoring or containment systems, following the standard technical instructions. On moderate slopes, a grass base provides a natural ability to retain the topsoil, ensuring stability and aesthetic continuity.
- **Slopes between 8% and 10%:** Installation is only recommended when using suitable containment and/or anchoring systems, which are necessary to keep the grid stable and maintain a level surface over time.

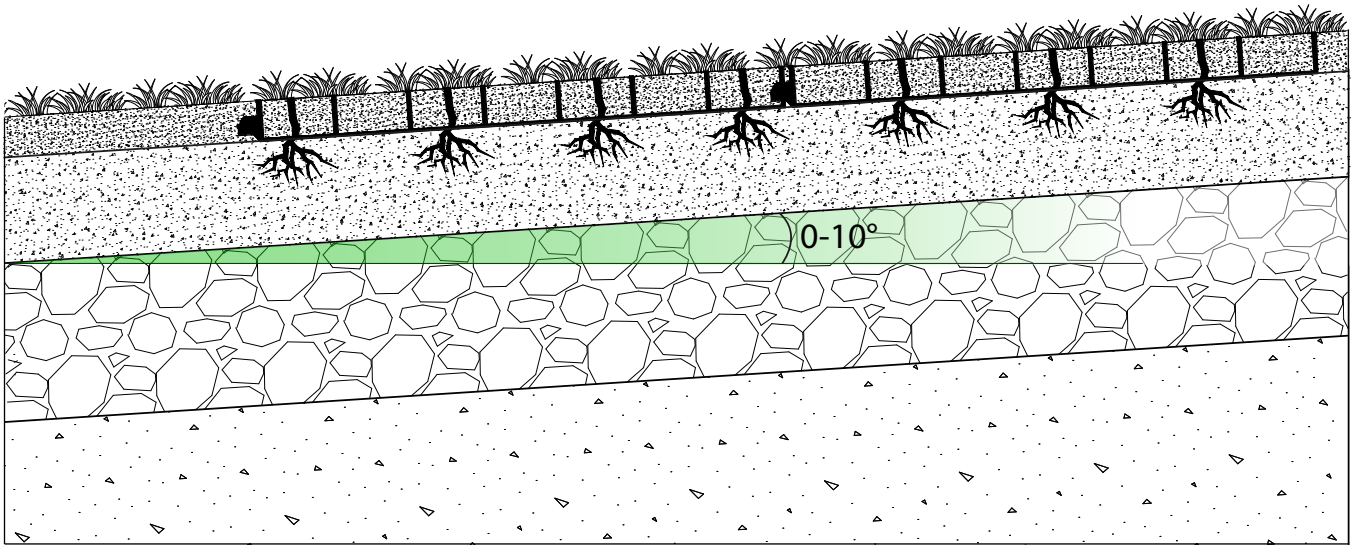
Containment and anchoring methods:

Method	Description
A. Check dams	Installation of kerbs or transverse retaining elements, with a maximum spacing of 3 linear metres.
B. Mechanical anchoring	Fixing the grids using metal stakes/pegs. · Anchoring depth: 40 cm · Spacing: 100 cm along the line of the steepest slope

- • **Slopes greater than 10% – Not Recommended:** Laying on grass surfaces with slopes exceeding 10% is not recommended, as the geotechnical stability and functionality of the system may be compromised.

  The main issues that can occur are:

  - *Reduced geotechnical stability:* The excessive slope increases water flow and washing away of fine material within the buried layers, risking the overall stability of the grid and the slope.
  - *Difficulty maintaining the fill:* The steep angle can cause uneven distribution of the topsoil and progressive emptying of the cells. If the fill material is washed away during heavy rainfall, the cells may be left partially empty, exposing them to shearing stresses and risking damage to the product.
  - *Risk of system slippage:* The weight of the grid itself, plus any loads on it, can cause the whole system to slide downhill, potentially requiring non-standard containment solutions.



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