Kontain

TECHNICAL APPLICATION BROCHURE

PAVEMENT STABILISATION & SOFT-GROUND SOLUTIONS

Unsealed pavements, working platforms, crane pads and temporary access selected around the actual ground, load and programme.

GROUND-LED | LOAD-LED | BUILDABLE

A4 technical brochure
August 2026

Start with the failure mechanism before the product

A buildable option becomes defensible when the ground behaviour, plant loading, consequence and evidence path are explicit.

RISK DRIVER	WHAT HAPPENS ON SITE	WHAT MAY NEED TO CHANGE	HOW TO CLOSE THE GAP
SUPPORT + RUTTING	Formation shears, pumps or deforms under first-lift placement and trafficking.	Design CBR, first-lift thickness, stabilisation, treatment or aggregate.	Ground profile, wheeled-load screening and project verification.
CONTAMINATION	Subgrade fines migrate upward or aggregate is lost into weak formation.	Separator/filter, composite pathway, drainage and aggregate grading.	Soil grading, filter compatibility and formation acceptance.
AGGREGATE SHEAR	The base spreads laterally, with rutting, edge shoving or rapid loss of shape.	Aperture-aggregate match, low-strain response, compaction and layer position.	Product evidence, aggregate data and a matched trafficking basis.
DEEP SOFT GROUND	Settlement or stability governs below the pavement working layer.	Basal reinforcement, staging, drainage, ground improvement or load reduction.	Stability, settlement and strain-compatible geotechnical design.
WATER + SEQUENCE	Ponding, soft spots or product damage develops during construction.	Crossfall and outlets, staged placement, cover thickness and access control.	Construction method, hold points and a wet-weather response plan.

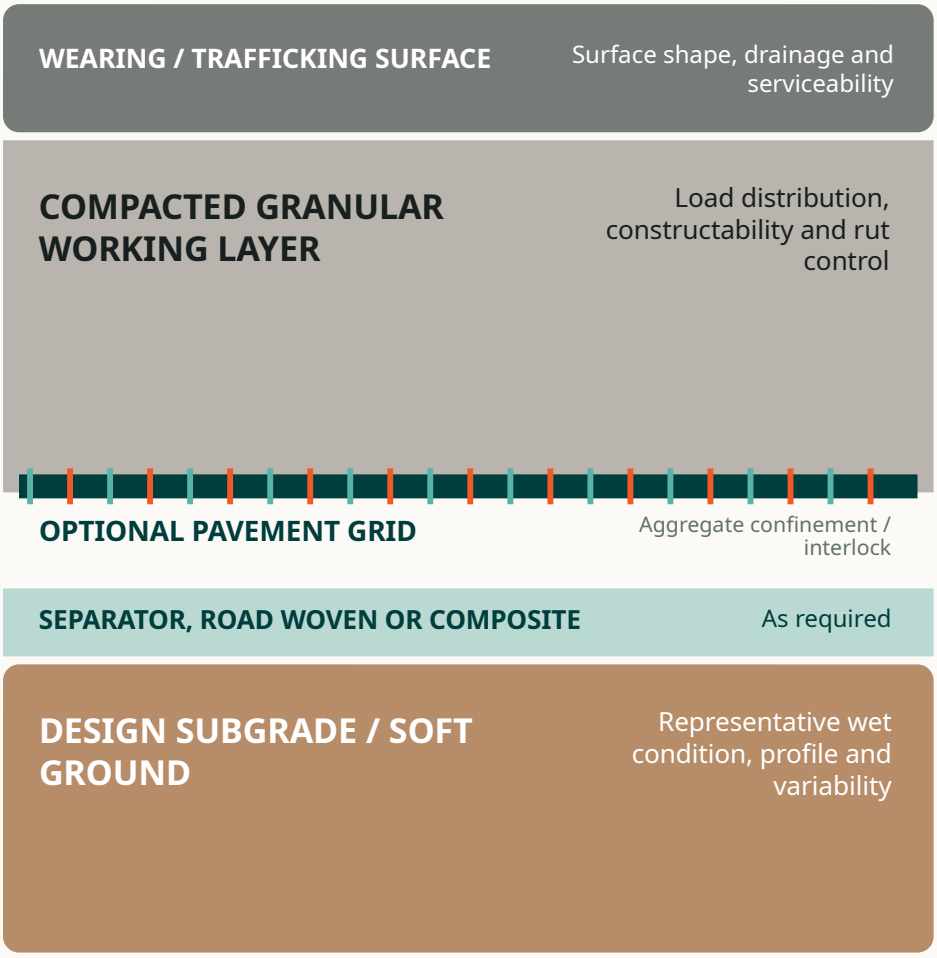
THE DECISION RULE

CBR is an input, not an allowable bearing pressure. Cranes, outriggers, tracked plant and piling platforms need actual reactions, load footprint, groundwater, bearing-failure and settlement checks.

Build the section around the ground and the plant

Every layer has a function. The interfaces must also work during first-lift placement, trafficking, operation and maintenance.

ILLUSTRATIVE PAVEMENT ARRANGEMENT



Indicative only: layer position and product combination are project-specific.

APPLICATION CHANGES THE DESIGN

WHEELED ACCESS

Wheel or dual-wheel load, tyre pressure, passes, rut limit and aggregate.

CRANE / PILING PLATFORM

Plant reactions, load footprint, edges, bearing, settlement and groundwater.

SOFT-GROUND EMBANKMENT

Weak-layer depth, global stability, strain, staged fill and drainage.

SYSTEM BOUNDARY

A grid confines aggregate; it does not filter migrating subgrade fines. Where pumping or contamination is credible, specify a compatible separator/filter or grid–geotextile composite.

DETAILS THAT OFTEN CONTROL

First-lift thickness • edge distance • drainage outlet • overlap and anchorage • aggregate grading • construction traffic • repair and hold points

One ground problem can require several functions

Products are not interchangeable because their strength values look similar. Select the response needed at the actual interface and strain level.

FUNCTION	WHAT IT CHANGES	DESIGN WITH
01 **SEPARATION + FILTRATION**	Keeps the granular working layer and fine-grained formation distinct while allowing cross-interface flow.	Soil grading, apparent opening size, permittivity, clogging risk and installation survivability.
02 **AGGREGATE STABILISATION**	Grid apertures engage aggregate to improve lateral restraint and composite granular-layer response.	Low-strain tensile stiffness, junction integrity, aperture–aggregate match, compaction and layer position.
03 **FRICTIONAL / TENSILE SUPPORT**	Road wovens mobilise interface friction and tensile response as deformation develops.	Required strain response, interface behaviour, filtration, survivability and expected deformation.
04 **BASAL REINFORCEMENT**	High-strength PET products carry defined tensile load paths beneath embankments or heavily loaded platforms.	Stability, settlement, creep, durability, strain compatibility, construction damage and anchorage.

DESIGN BY SYSTEM RESPONSE, NOT PRODUCT LABEL

Low-strain stiffness and robust junctions help mobilise interlock and confinement under repeated trafficking. Junction efficiency alone does not establish pavement performance.

CBR matters. It is not the whole ground model.

Use the weakest credible construction and service condition. CBR is a pavement support index; it is not a direct conversion to allowable bearing pressure in kPa.

INDICATIVE TOOL RANGE

3 to <5%

Upper published Giroud-Han subgrade range

2 to <3%

Weak formation: separation, water and first lift matter

1 to <2%

Very weak: construction sequencing can govern

0.5 to <1%

Extremely weak: review ground treatment and deeper response

The published Giroud-Han unpaved-road method is limited to subgrade CBR below 5%. Other pavement and geotechnical design routes apply outside that scope.

INPUTS THAT MATERIALLY CHANGE THE ANSWER

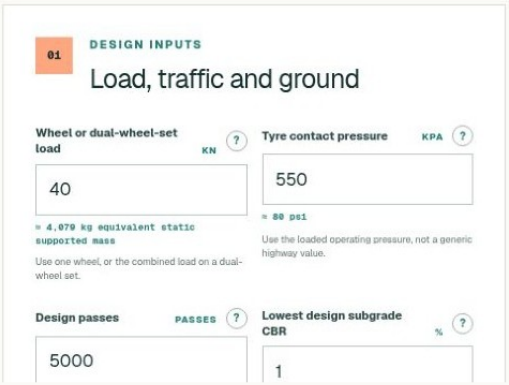
GROUND	Profile, weak-layer depth, design CBR and test condition; undrained strength where relevant.
WATER	Groundwater, seasonal wetting, pumping, crossfall, outlets and subsoil drainage.
PLANT	Wheel or dual-wheel load and tyre pressure; treat tracks, outriggers and mats separately.
TRAFFIC	Passes on the critical path, wheel wander, turning, braking and any dynamic allowance.
GRANULAR	Compacted CBR, grading, durability, density, moisture conditioning and achievable compaction.
SERVICEABILITY	Allowable rut, settlement tolerance, operating surface, maintenance strategy and design life.

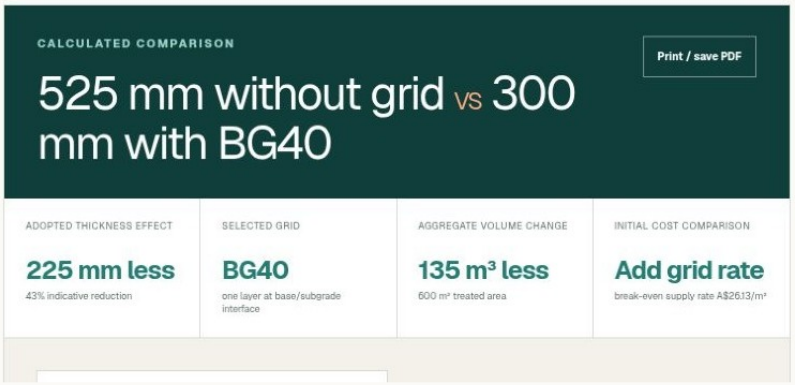
USE THE DESIGN CONDITION

Use the lowest representative design CBR, not the best test result. Proof rolling can expose local defects but does not replace investigation where sensitive or deep soft ground, groundwater or major temporary loads govern.

Screen the opportunity online. Then verify the project.

Kontain's free tool compares unreinforced and BG-stabilised unsealed sections under direct wheeled loading, with an auditable input and assumption trail.





OPEN THE LIVE TOOL: https://kontainsolutions.com/design-tools/pavement-design-tool

WHAT IT USES

- Wheel or dual-wheel-set load
- Tyre contact pressure
- Design passes
- Lowest representative subgrade CBR
- Compacted aggregate CBR
- Allowable rut depth
- Formation condition and geometry

WHAT IT RETURNS

- Unreinforced and stabilised thickness
- Aggregate volume and cost comparison
- Selected BG grade and layer position
- Preliminary layer schedule
- Checks requiring attention
- Full calculation audit trail
- Printable option report

WHAT IT DOES NOT DO

- ESA-based sealed-pavement design
- Track, outrigger or crane-platform checks
- Verify the user's ground or load data
- Replace drainage or geotechnical review
- Guarantee a thickness or life benefit
- Establish product equivalence without evidence
- Automatically certify the result

LIVE DEFAULT EXAMPLE - 20 AUGUST 2026

40 kN wheel set, 550 kPa, 5,000 passes, subgrade CBR 1%, base CBR 60%, 75 mm rut limit: 525 mm unreinforced vs 300 mm with BG40; 135 m³ less aggregate over 600 m².

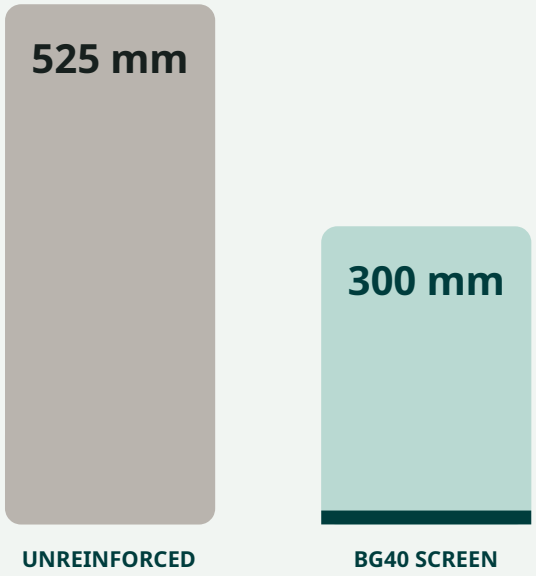
ILLUSTRATIVE ONLY
Not a general BG40 claim.

Less imported aggregate can reduce carbon - if the whole section is counted

A geosynthetic is not automatically a low-carbon solution. The opportunity exists when an equivalent design reduces high-volume construction or maintenance activities.

COMPARE FUNCTIONALLY EQUIVALENT SECTIONS

LIVE TOOL DEFAULT



Same shown input set. The difference is an illustrative tool output, not a general product performance factor.

WHOLE-SECTION CARBON BOUNDARY

01 QUARRY + MATERIAL

Aggregate production, binder treatment and verified product EPD data.

02 EARTHWORKS + DISPOSAL

Undercut, excavation, spoil movement and disposal destination.

03 HAULAGE

Tonnes moved, one-way distance, vehicle payload and empty return.

04 SITE PLANT + PROGRAMME

Spreading, moisture conditioning, compaction, trimming and duration.

05 SERVICE LIFE

Maintenance, regrading, rehabilitation, disruption and end-of-life assumptions.

ILLUSTRATIVE QUANTITY CONVERSION

135 m^3 less compacted aggregate

x 2.1 t/m^3

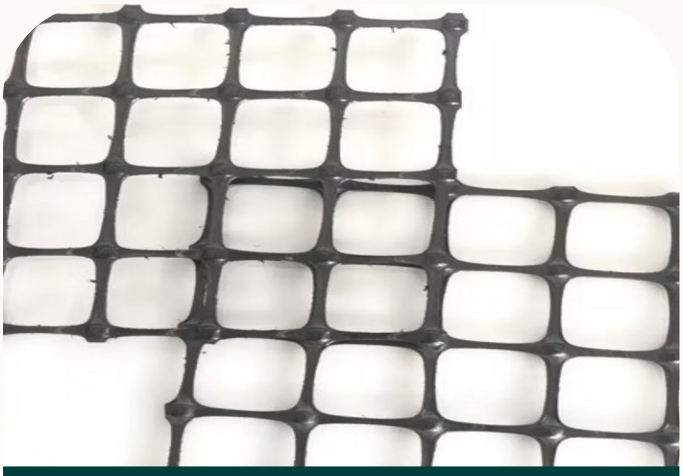
≈ 284 t before project-specific haul and EPD factors

CARBON CLAIM RULE

Calculate the actual alternative with verified quantities, haul distances, site plant, geosynthetic manufacture and freight, maintenance and service life. Do not apply a generic percentage.

Match the product family to the required function

Low-strain stiffness, robust junctions and aperture–aggregate compatibility govern confinement. Ultimate tensile strength alone does not select the system.



STIFF BIAXIAL GRID: INTEGRAL JUNCTIONS

ROAD WOVEN: SEPARATION + SUPPORT

FAMILY	PRINCIPAL ROLE	USE WHEN	KEY BOUNDARY
BG / TG	Low-strain interlock restrains lateral aggregate movement under traffic.	Unbound roads, haul roads and working layers with aperture-matched aggregate.	Does not filter subgrade fines.
BGC / TGC	Grid response plus a bonded nonwoven separator/filter.	Weak, wet or pumping-prone formation needs stabilisation plus separation/filtering.	Bond integrity and filter selection matter.
BW-PP / BW-LS	Separation and filtration with frictional or low-strain tensile support.	Layer integrity and construction survivability govern over weak formation.	Not grid-style aperture interlock.
SW-PET	High-strength structural basal reinforcement for defined load paths.	Embankments, platforms or deep soft ground require stability and settlement design.	Creep and strain-compatible design required.
KNP	Needle-punched nonwoven separation and filtration.	A continuous filter is required independently of a grid or woven.	Select by filter and survivability criteria, not gsm alone.

Plain grids stabilise aggregate; they do not stop subgrade pumping or fines contamination.

Buildability is part of the design

The selected section must survive handling, first-lift placement and the actual construction sequence. Field controls close the gap between a TDS and a working platform.

FIELD SEQUENCE

1 **ACCEPT THE FORMATION**

Confirm level, drainage, moisture condition, local soft spots, protrusions and any departure from the design ground model.

2 **IDENTIFY THE PRODUCT**

Check roll labels, batch documents, current TDS, storage condition, orientation and the approved roll layout.

3 **PLACE FLAT + REPAIR**

Use the project overlap and anchoring detail. Remove wrinkles, inspect damage and repair before covering.

4 **BUILD FROM COVERED GROUND**

No direct trafficking on exposed product. Advance fill from the covered side and maintain the required first-lift cover.

5 **VERIFY THE WORKING LAYER**

Record lift thickness, moisture, compaction, repairs and response to rutting, pumping or unexpected groundwater.

HOLD POINTS

Formation acceptance • installed geosynthetic • first-lift placement

WHERE IT FITS

- **WIND-FARM ACCESS + CRANE PADS**
- **CIVIL SITE ACCESS + LAYDOWN**
- **MINE + HAUL ROADS**
- **WORKING + PILING PLATFORMS**
- **HARDSTANDS + UNSEALED PAVEMENTS**
- **SOFT-GROUND EMBANKMENTS**

WORK WITH KONTAIN

1 **SEND WHAT EXISTS**

Ground data, drawings, load, traffic, area, aggregate, programme and site photographs.

2 **SCREEN THE MECHANISMS**

Separate pavement, temporary-works and deeper geotechnical questions.

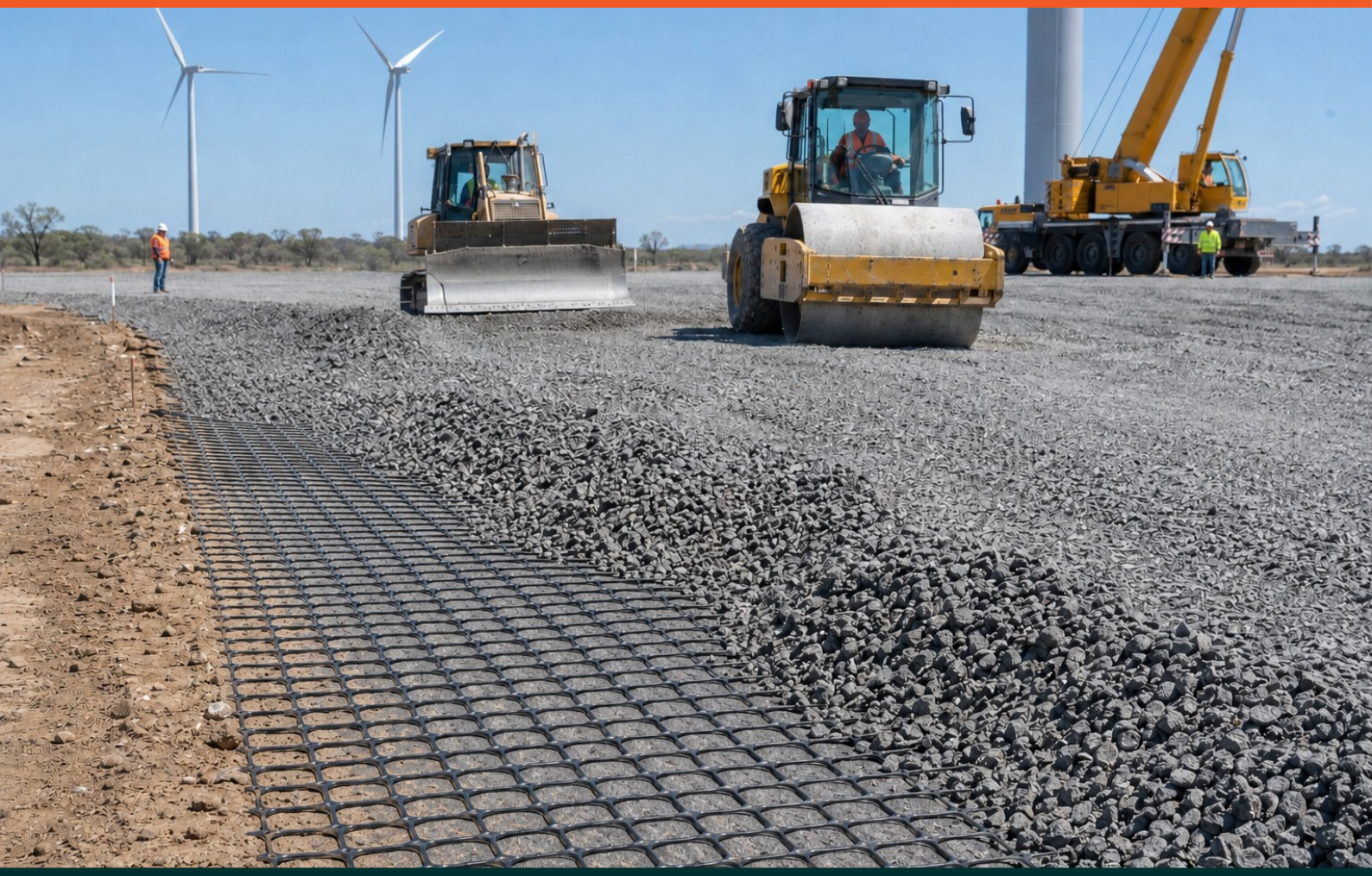
3 **COMPARE BUILDABLE OPTIONS**

Conventional, grid, woven, composite, binder treatment, undercut or hybrid.

4 **DOCUMENT + SUPPORT**

Design boundary, product evidence, quantities, quote, field controls and certification pathway.

If the ground, water or plant changes, stop and review the adopted section.



Kontain

Bring Kontain in before the pavement is locked.

A drawing, CBR result, plant schedule, traffic estimate, site photograph, aggregate source or programme constraint is enough to start a useful technical conversation.

Current products, design tools and quote requests

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PAVEMENT TOOL: Open the design comparison