



WWW.BOSUN.CO.ZA



EXPECT THE BEST
BUFFALO BLOCK



B U F F A L O B L O C K

THE INDUSTRY LEADING ARTICULATED CONCRETE BLOCK

EXPECT THE BEST



HIGHLY VERSATILE ARTICULATED CONCRETE BLOCK

The Bosun Buffalo Block is a highly versatile Articulated Concrete Block (ACB) designed for effective erosion control management. The innovative design doesn't require cabling or on-site curing, making it an ideal alternative to cast in-situ concrete and alternate ACBs.

The compact design of the block promotes hand labour and ensures easy handling and installation. This makes it an ideal solution for sites that are complex in nature and that might not be able to accommodate large construction equipment.

With an industry leading Movability Number that exceeds SANRAL's proposed criteria for alternate erosion protection measures, the Buffalo Block is suitable for various applications, such as:

- canals
- drains
- dam spillways
- culvert outlets
- embankment stabilisation
- road intersections
- permeable pavements



AN ENGINEERED DESIGN FOCUSSED ON:

- hydraulic performance (moveability and roughness)
- suitable mass per m²
- geometric interlock - in all directions
- ease of installation
- cost effectiveness

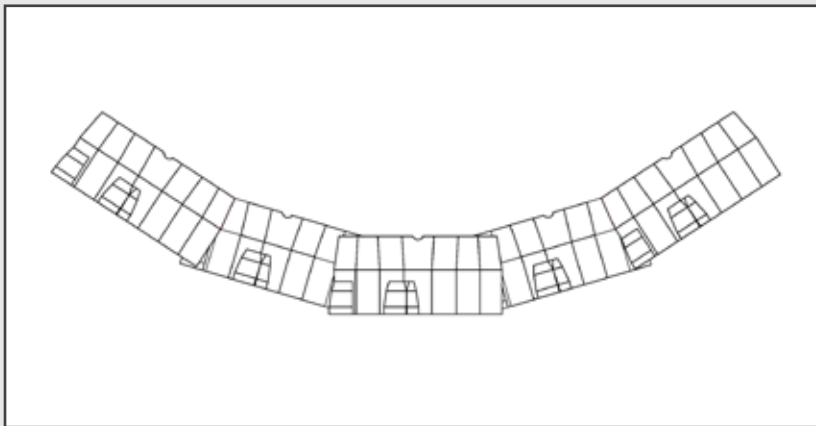
The unique geometry of the Buffalo Block is designed with a complete interlock ability in mind. With an industry leading movability factor, the Buffalo Block creates a stable matrix of blocks which can resist the destructive forces brought on by high velocity water-flow.



DESIGNED TO INTERLOCK

The unique geometry of the Buffalo Block is designed with a complete interlock ability in mind. The Buffalo Block features specially designed nibs, which;

- increase shear resistance between blocks to ensure hydraulic stability.
- allow for easier installation on uneven surfaces. The taper of the nibs make the installation forgiving while maintaining interlock.
- ensure adequate and uniform joint widths between blocks.
- prevent edge and corner spalling when subject to vehicular traffic.



The taper on the nibs creates greater shear resistance between the blocks when following the curved nature of water channels and sloped embankments, while maintaining interlock ability.

ENGINEERED ROUGHNESS & STABILITY

The engineered surface of the Buffalo Block is designed to have a suitable roughness coefficient to reduce waterflow energy. In addition to reducing waterflow energy, the horizontal and vertical grooves on the face of the block also serve as convenient cutting lines.

Movability number	0.327
Manning's -n (Range)	0.024 - 0.031

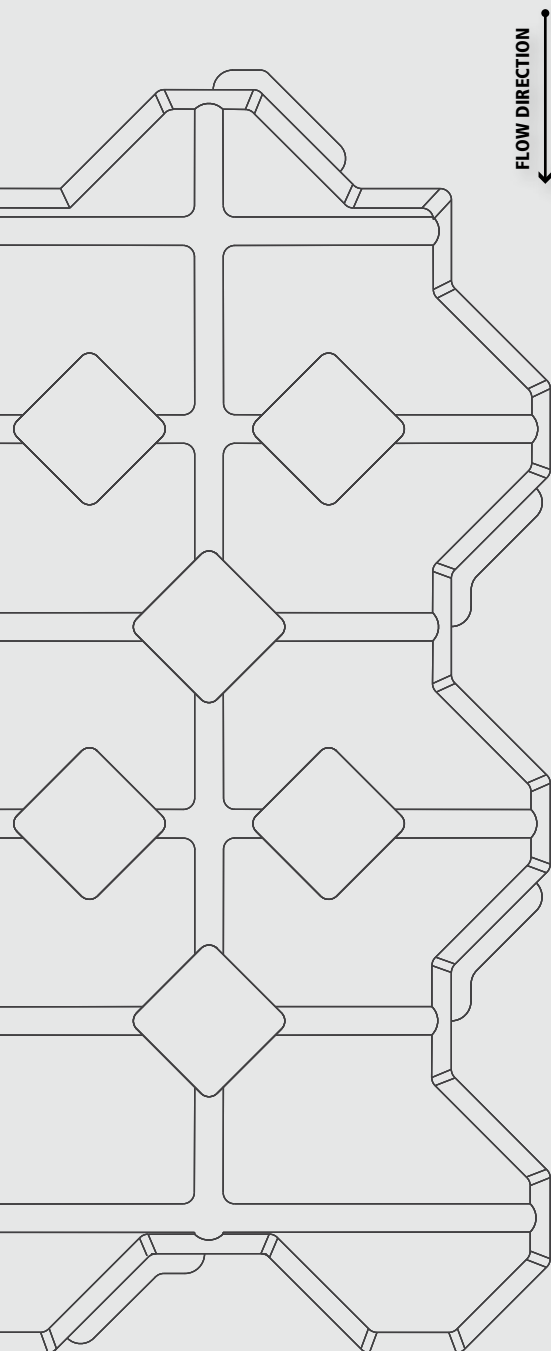


PERMEABILITY AND VEGETATION GROWTH

The voids in the Buffalo Block allow for the ingress of water, growth of vegetation and the infill of concrete on specific installation designs. The size of the openings per block are 40mm x 40mm. In addition to these openings, the nibs space the blocks apart – further increasing the permeability of the installation. Once installed, they amount to approximately 20,5%/m².

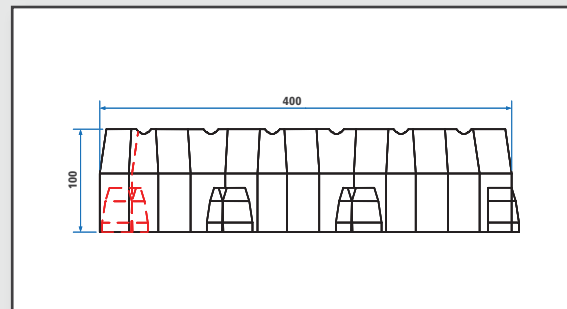
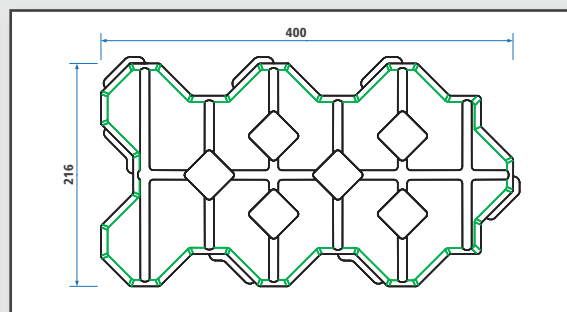
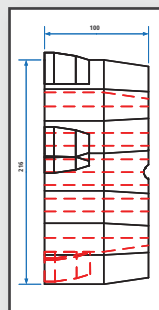
The growth of vegetation in and around the blocks creates a natural look that blends into the surrounding environment, making it ideal for drainage channels, embankment stabilisation and hard lawn installations.





TECHNICAL DESIGN INFORMATION

Dimensions	400mm x 216mm (l x w)
Thickness	100mm
Mass per block	±13.1kg
Mass per m ²	177.51kg
Infill volume of cavities per area installed	0.0205 m ³ /m ²
Percentage open area per area installed	20.5%
Minimum bending radius	0.589m
Movability number	0.327
Manning's -n (range)	0.024 - 0.031



HYDRAULIC TESTING

The University of Stellenbosch conducted independent tests on the hydraulic stability of the Buffalo Block for high velocity water channels and erosion control applications. The study enables engineers to design water channels based on the following parameters:

- The Manning Roughness Coefficient (the roughness of the Buffalo Block surface against flow, which is also a function of flow depth.)
- The Movability Number (the parameter describing the point which incipient motion/movement of the block will occur.)

In conclusion, the study revealed that the Movability Number (according to Lui's stream-power theory) for the Buffalo Block is greater than SANRAL's (2013) proposed Movability Number of 0.12 (for natural sediments like sand, gravel, boulders, and rocks), rendering SANRAL's (2013) criteria conservative for design. Furthermore, the Movability Number is also greater than likes of riprap and other Articulated Concrete Blocks available in South Africa.

TEST SLOPE	FLOW RATE	SYSTEM CONDITIONS
1:30	690 L/s	No Failure (max lab discharge)
1:20	690 L/s	No Failure (max lab discharge)
1:10	157 L/s	Failed

Movability number	0.327
Manning's -n (Range)	0.024 - 0.031

- The full study can be found at www.bosun.co.za
- Design calculator available on request.







WWW.BOSUN.CO.ZA
EXPECT THE BEST



CONTACT US

GAUTENG

Tel: 011 310 1176
Fax: 011 310 1178
Email: gp@bosun.co.za

Physical Address:
Corner Cresset & Musket Roads
Midrand Industrial Park
Midrand

NORTH WEST

Tel: 012 250 1711
Fax: 012 250 1708
Email: nw@bosun.co.za

Physical Address:
1892 Pendoring Street
Brits Industrial Area
Brits

EASTERN CAPE

Tel: 041 405 0100
Fax: 041 405 0199
Email: ec@bosun.co.za

Physical Address:
Corner Neptune Road & MR435
Coega Industrial Development Zone
Port Elizabeth

