

# **SHOREBLOCK™**

***BD Series***

**Drainage Channels**

**Riverfronts**

**Coastal Shorelines**

**Pipeline Protection**

**Boat Ramps**

**Lake Shorelines**

**Low Water Stream Crossings**

**Wildlife Habitat**

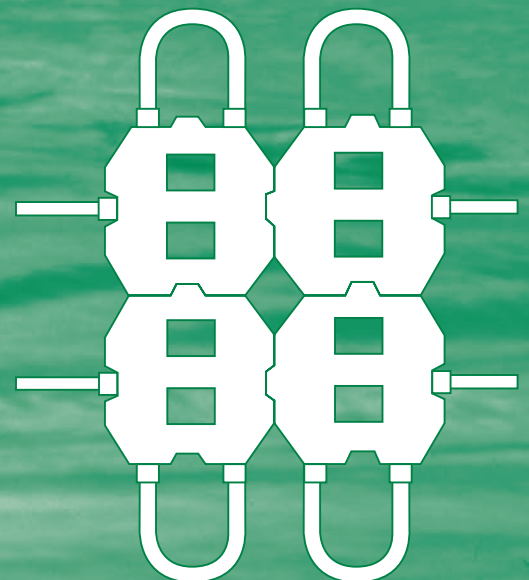
**Bridge Abutment/Slopes**

**Dikes and Levees**

**Retention Basins**

**Overflow Channels**

**Dams**



# SHOREBLOCK™

## BD Series



SHOREBLOCK™ BD Series system is a matrix of individual concrete blocks placed together to form an erosion-resistant overlay with specific hydraulic performance characteristics. The system includes a geotextile underlay, which allows infiltration and exfiltration to occur while providing particle retention of the soil sub-grade. The blocks within the matrix are dense and durable and the matrix is flexible and porous.

SHOREBLOCK™ BD Series is used to provide protection for underlying soil materials. The term “articulated” implies the ability of individual blocks of the system to conform to changes in grade while remaining interlocked or otherwise restrained by virtue of the block geometry and/or additional system components such as cable, geotextiles or anchors. The interlocking property provided by the special shapes of SHOREBLOCK™ BD Series also allow for expansion and contraction. They are installed as pre-assembled mats on top of selected geotextiles and act as a soil revetment.

SHOREBLOCK™ BD Series is an effective erosion control system used to solve a wide variety of erosion problems:



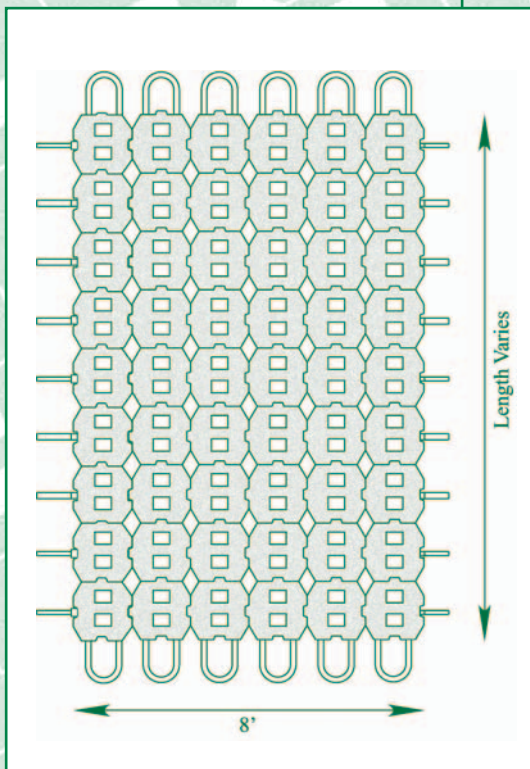
- Drainage channels
- Riverfronts
- Coastal shorelines
- Pipeline protection
- Boat ramps
- Lake shorelines

- Wildlife habitat
- Bridge abutments/piers
- Dikes and levees
- Spillways
- Retention basins
- Overflow channels

Low water stream crossings

SHOREBLOCK™ BD Series is easy to install and environmentally friendly. This method is often used as an alternative to cast-in-place concrete bulkheads, slope paving, gabions, soil cement and rock riprap.

SHOREBLOCK™ BD Series comes in many thickness varieties and has excellent resistance to hydraulic shear and overtopping conditions.



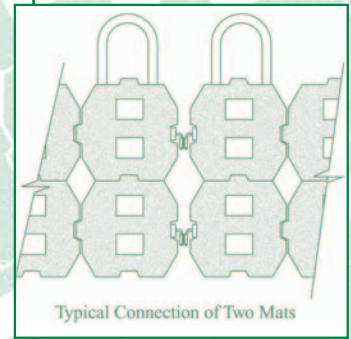
### SHOREBLOCK™ MATS

SHOREBLOCK™ mats are assembled according to the size required for a particular project. Each individual block is inspected prior to being incorporated into a revetment mat. Fabrication of a SHOREBLOCK™ mat is accomplished by threading corrosive resistant steel or special synthetic cable in both directions through a series of blocks. Cables are then secured to the mattress with corrosive resistant hardware. Cables are sized to provide a 5 to 1 cable strength to mat weight ratio to insure safe handling while providing extraordinary strength in the system. Longitudinal cables are looped together at the ends of each row of blocks in the mat assembly for easy handling and anchoring. Lateral cables extend approximately 6 inches past the outer recesses of the mat. These extended cables are fastened together, and then the mats are installed on the slope, binding one mat to the other.

# SHOREBLOCK™ PERFORMANCE

The SHOREBLOCK™ cabled erosion control revetment system has been proven in the laboratory and the field as a technical and economical improvement over traditional forms of erosion control. By virtue of their large unit mass and bi-directional corrosion resistant cables, SHOREBLOCK™ mattresses provide an easily constructed, durable, flexible, and permeable erosion protection system.

The SHOREBLOCK™ system was developed to provide a superior armored surface for long-term erosion control. SHOREBLOCK™ mattresses are placed on geotextile fabric, which provides soil retention, as well as permeability, through the revetment system. The interlocking units and bi-directional corrosion resistant cables allow the SHOREBLOCK™ system to articulate with unequaled strength and stability. Lateral cable connections between adjacent mattresses ensure continuous strength throughout the entire revetment system. This unique feature provides the system integrity necessary for maintenance-free long-term erosion protection.



Upon complete assembly, the SHOREBLOCK™ mats can be stockpiled or loaded on flatbed trucks or barges for shipment to the job site.



## PERFORMANCE & EVALUATION

For over 30 years, a wide range of research projects have been executed to evaluate the performance of articulating concrete blocks, including the following:

- “Hydraulic Stability of Articulated Concrete Block Revetment Systems During Overtopping Flow,” Colorado State University, 1988-2002
- “Minimizing Embankment Damage During Overtopping Flows,” FHWA Report-RD-88-181 prepared by Simons, Li and Associates, Inc., November 1988
- Hydraulic Stability of Articulated Concrete Block Revetment Systems During Overtopping Flow, Clopper, P.E. ~ Technical Report FHWA RD-89-199. Federal Highway Administration, 1989
- Standard Specification for Materials and Manufacture of Articulating Concrete Block (ACB) Revetment Systems, ASTM D 6684-01 ~ ASTM International, 2001
- Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units, ASTM C 140-01ae1 ~ ASTM International, 2001
- Design Manual for Articulating Concrete Block Systems ~ Harris County Flood Control District, Houston, Texas, 2001
- Articulated Concrete Block for Erosion Control, TEK 11-9A ~ National Concrete Masonry Association, Herndon, Virginia, 1999
- Design of Roadside Channels with Flexible Lining ~ Federal Highway Administration Hydraulic Engineering Circular No. 15
- Hydraulic Engineering ~ Federal Highway Administration Hydraulic Engineering Circular No. 23
- RMA-2V Version 4.35 ~ United States Army Corps of Engineers, USACE Waterways Experiment Station, 1997
- HEC-RAS Version 2.2 ~ United States Army Corps of Engineers, USACE Hydrologic Engineering Center, 1998
- Applied Hydraulics in Engineering, Second Edition ~ Morris, H.M. and J. Wiggert, James Wiley & Sons, 1972
- “Design for Reinforced Grass Waterways,” ~ CIRIA Report 116, 1987



BD Series Block

SHOREBLOCK™ has been successfully tested by Colorado State University, in accordance with the hydraulic performance testing protocol established by the U.S. Federal Highway Administration (FHWA-RD-89-199).



# SHOREBLOCK™

## BD Series

### SPECIFICATIONS

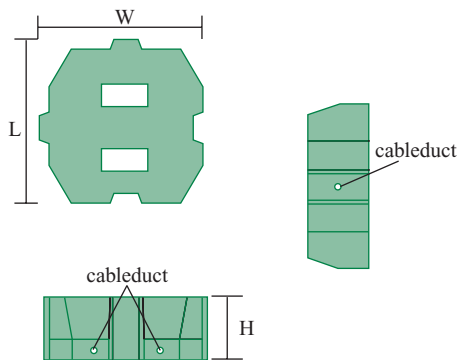
OPEN CELL UNITS	Dimensions In.			Block		UNIT Coverage Sq. Ft.	Open Area %
	H	W	L	Unit Weight Lbs.	System Weight Lbs./Sq. Ft.		
BD-400 OC	4.00	15 7/8	15 7/8	56-62	32-35	1.78	20
BD-500 OC	5.00	15 7/8	15 7/8	71-76	40-44	1.78	20
BD-600 OC	6.00	15 7/8	15 7/8	86-93	50-54	1.78	20
BD-800 OC	8.00	15 7/8	15 7/8	114-130	66-72	1.78	20
BD-900 OC	9.00	15 7/8	15 7/8	127 - 146	73-82	1.78	20
BD-400S OC	4.00	15 7/8	11 7/8	43-46	32-35	1.35	18
BD-500S OC	5.00	15 7/8	11 7/8	54-57	40-43	1.35	18
BD-600S OC	6.00	15 7/8	11 7/8	67-71	50-53	1.35	18

CLOSED CELL UNITS	Dimensions In.			Block		UNIT Coverage Sq. Ft.	Open Area %
	H	W	L	Unit Weight Lbs.	System Weight Lbs./Sq. Ft.		
BD-400 CC	4.00	15 7/8	15 7/8	66-72	37-40	1.78	7
BD-500 CC	5.00	15 7/8	15 7/8	82-88	46-51	1.78	7
BD-600 CC	6.00	15 7/8	15 7/8	101-108	58-62	1.78	7
BD-800 CC	8.00	15 7/8	15 7/8	130-150	74-83	1.78	7
BD-900 CC	9.00	15 7/8	15 7/8	148 - 170	84-97	1.78	7
BD-400S CC	4.00	15 7/8	11 7/8	50-54	37-40	1.35	7
BD-500S CC	5.00	15 7/8	11 7/8	61-65	45-48	1.35	7
BD-600S CC	6.00	15 7/8	11 7/8	75-81	56-60	1.35	7

\*The BD Series denotes the Bi-Directional Cable System.

Note: Additional block styles may be available in some areas.

Check with your local SHORETEC™, LLC representative for product availability.



#### Technical Specifications:

1) SHOREBLOCK™ Units are manufactured in accordance with ASTM C90 and C140 and the following criteria:

- A) Concrete Unit Weight 130-150 lbs./CF
- B) Minimum Compression Strength 4,000 PSI
- C) Maximum Absorption 7%
- D) Dimensional Tolerance +/- 1/8"

2) Galvanized or Polyester Cabling

DISTRIBUTED BY



**SHORETEC™ LLC**

Preserving Our Natural Resources

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SHORETEC™ may change product specifications without notice. The SHORETEC™ System is suitable for use in the applications described in this brochure provided proper installation and engineering principles are followed. Professional engineering should be consulted before installation of SHOREBLOCK™ units to assure proper design. **ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.**