

A close-up, high-angle photograph of green grass blades, creating a dense, textured background. The blades are long and narrow, with some showing fine details of their structure. The lighting is soft, highlighting the natural green color of the grass.

Where the grass regrows

w e w e r e t h e r e P r o d u c t G u i d e

MACCAFERRI

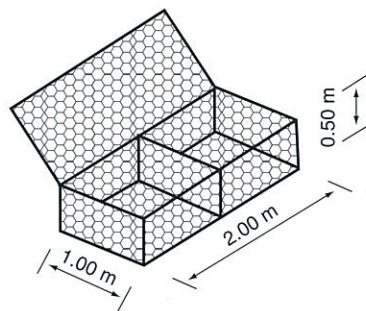
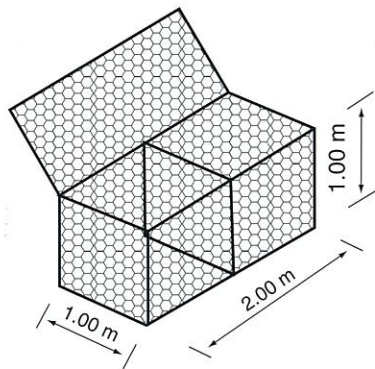
DESCRIPTION OF THE MACCAFERRI BOX GABION

ZINC COATED BOX GABIONS

Box gabions consist of rectangular units, fabricated from a double-twist, hexagonal mesh of soft annealed, heavily zinc coated wire. The wire quality and the zinc coating meet all international specifications. The mesh panels are reinforced at all edges with wires of a larger diameter than that used for manufacturing the mesh, to strengthen them and to facilitate construction. Gabions are divided into cells by fitting diaphragms which have the function of reinforcing the structure and making assembly and erection easier.

ZINC COATED BOX GABIONS WITH PVC SLEEVE

The characteristics of these products are similar to those of the zinc-coated gabions; however the wire, prior to manufacturing the mesh, is coated with a 0.4 to 0.6 mm thick special PVC (polyvinyl chloride) continuous sheath. A complete protection against possible corrosion is thus obtained, making the gabions suitable for use in marine or polluted environments. Filled with stone, gabions become a large, flexible and permeable building block from which a broad range of structures may be built.



*Other size available on request



1 Jelevu, Negeri Sembilan – MALAYSIA

2 Mount Pinatubo – THE PHILIPPINES

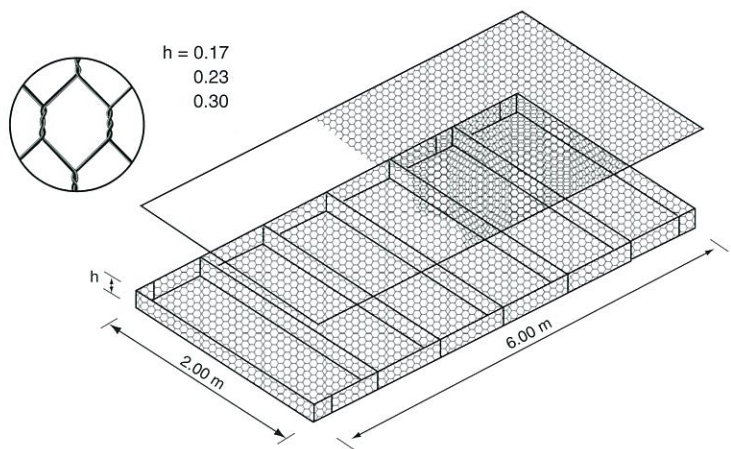
3 Joong Ang Highway, Hong Cheon near Wal Un Li – KOREA

DESCRIPTION OF THE MACCAFERRI RENO® MATTRESS

ZINC COATED RENO® MATTRESS

The Reno® mattress is a special form of gabion with a large plan area/thickness ratio. It is fabricated from a similar but smaller double-twist hexagonal mesh to that used to manufacture the gabions. The wire characteristics are the same. Diaphragms are spaced at 1.00 m centres, and a continuous panel of mesh forms the base, the side and the end walls of the unit to obtain an open-topped multicell container.

The same mesh is used for the base, diaphragms, and the separate lid (made up with mesh panels). All panel edges are selvedged with a wire of larger diameter than that used for the mesh, so as to strengthen the structure.



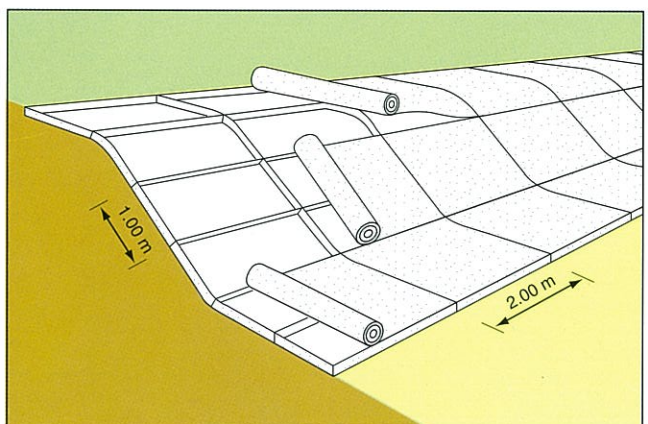
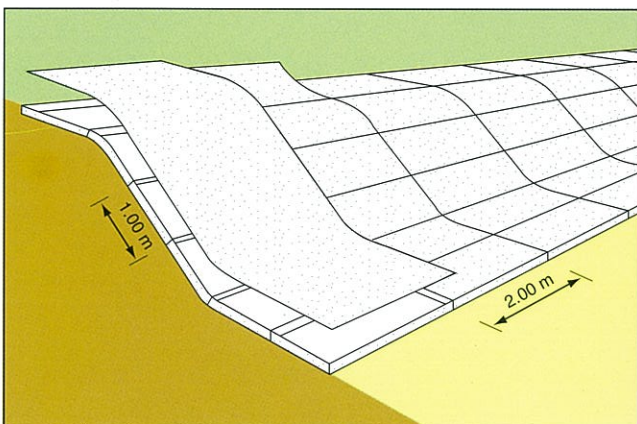
ZINC COATED RENO® MATTRESS WITH PVC SLEEVE

The wire of the Reno® mattress can be coated with PVC in the same manner as that for gabions.



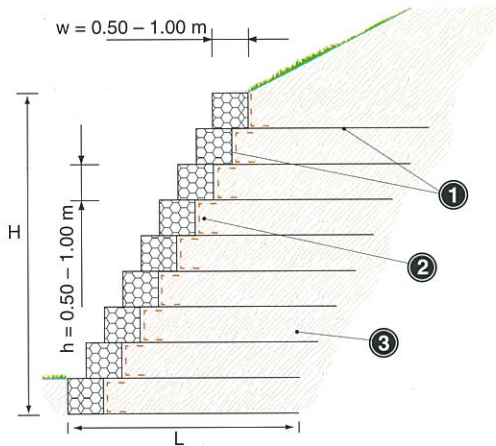
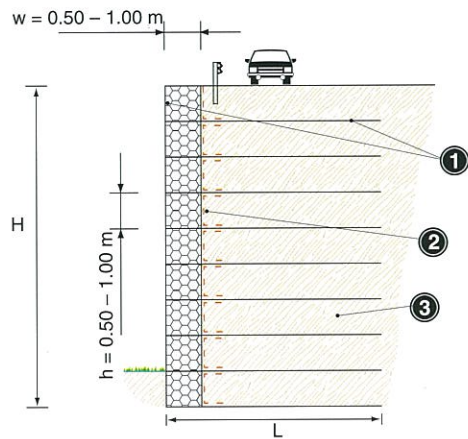
1 Sg. Golok, Kelantan – MALAYSIA

2 Sg. Paka, Petronas Plant 5 & 6, Terengganu – MALAYSIA

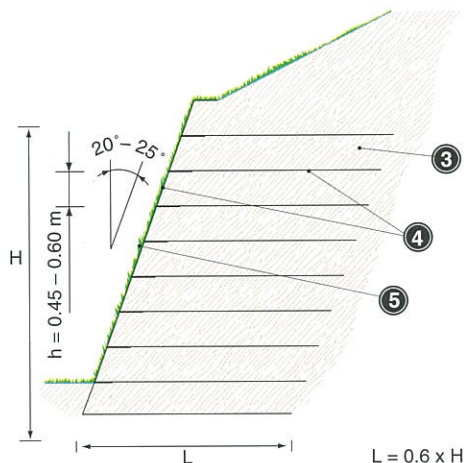


TERRAMESH® SYSTEM

Terramesh System



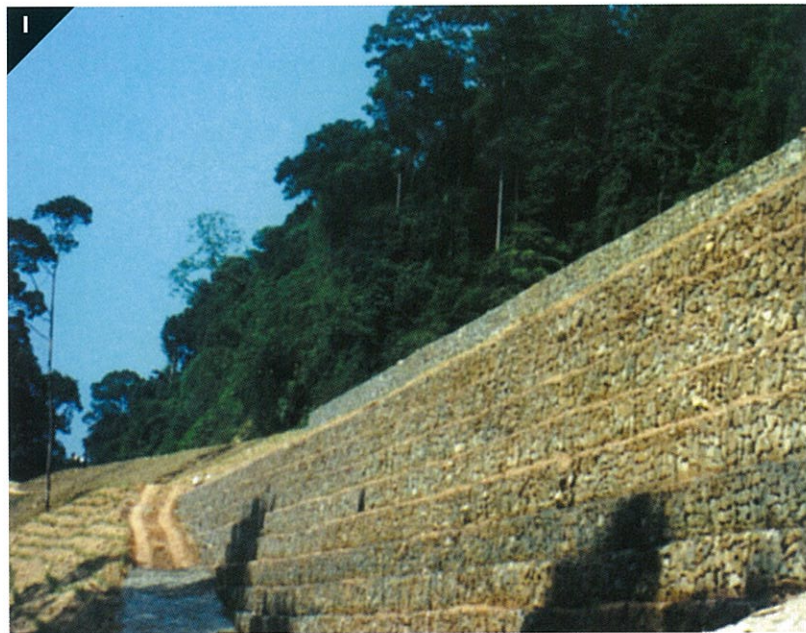
Terramesh Green



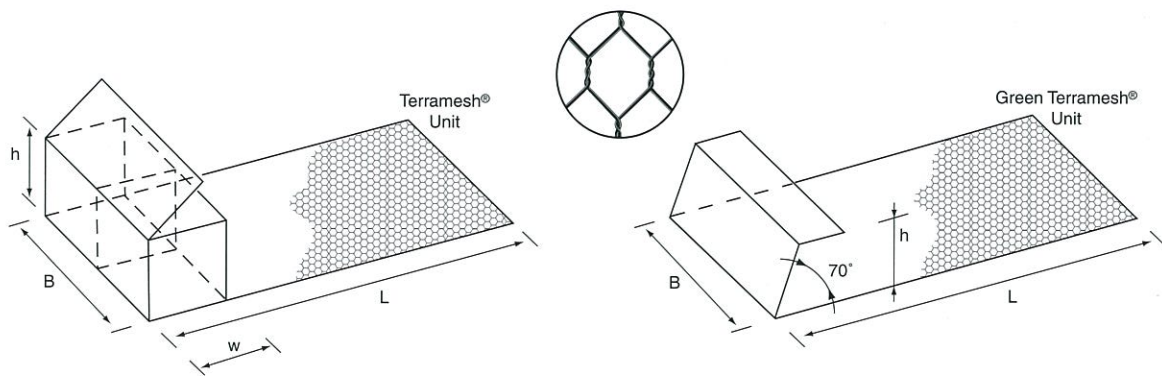
- ① Terramesh Unit
- ② Non-Woven Geotextile
- ③ Back-Fill
- ④ Green Terramesh Unit
- ⑤ Hydroseeding

TERRAMESH® SYSTEM

An interesting application for our zinc/PVC coated mesh products can be found in the field of reinforced soil. A combined anchorage system and cladding can be constructed as a single element. The facing can be 0.5-1.0 m thick, with a sheer or stepped face, similar to a normal box gabion wall which can be filled with stone or with soil inside a fibre mat. Where stone is used as a filling material the external face can be covered naturally by inserting cuttings, planting climbers or covering the external steps with soil. However when soil is used for filling (Green Terramesh®) then a superficial hydroseeding, using an enriched soil and seed mix, can be applied to the face and a complete "greening" of the structure can be obtained.



TERRAMESH® SYSTEM



1 *Jengka Felda Road – MALAYSIA*

2 *Shah Alam Stadium – MALAYSIA*

3 *Batu Hijau – INDONESIA*

4 *King's Palace, Chiang Mai – THAILAND*



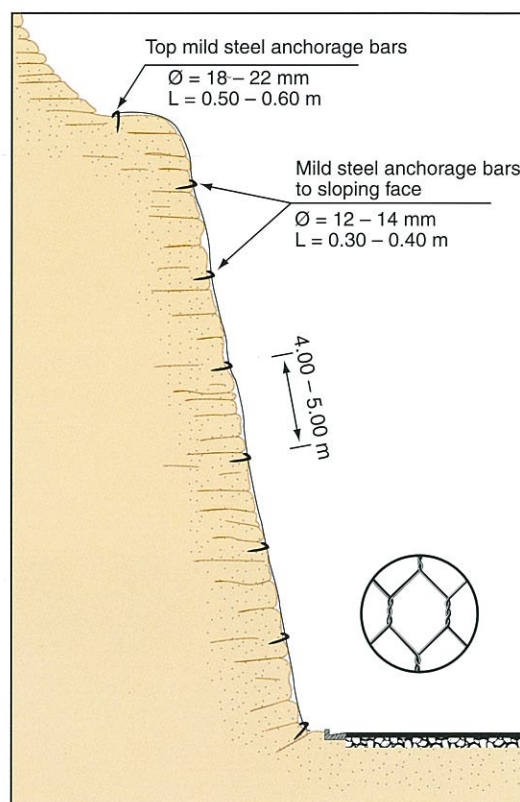
DESCRIPTION OF THE MACCAFERRI ROCKFALL PROTECTION



Erection of netting by means of crane, Penang – MALAYSIA

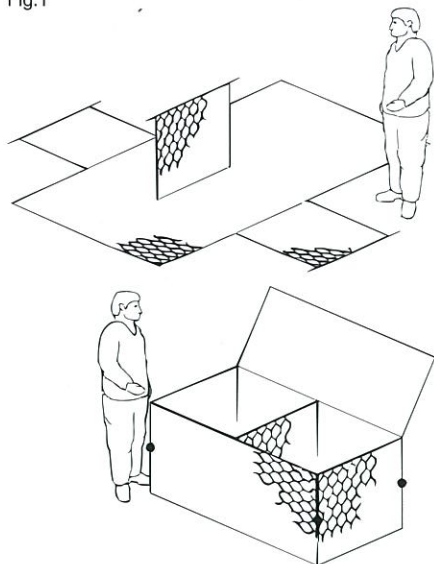
Wire mesh netting is often used to prevent rocks and debris from falling on to roads, railways and buildings. This solution can also help to establish vegetation.

Maccaferri Rockfall mesh has the same characteristics as that used for gabions and Reno® mattresses. Thanks to the double-twist weaving it is able to withstand the force of the falling rocks and, unlike chain-link mesh, does not unravel should some of the wires break.



GABIONS & RENO MATTRESSES INSTALLATION PROCEDURES

Fig.1



GABIONS

MATERIAL DELIVERY

Gabions are manufactured with all components mechanically connected at the production facility, as per ASTM A975-97. All gabions are supplied in the collapsed form, folded and bundled. The bundles are compressed and strapped together at the factory for easy shipping and handling. Lacing wire is shipped in coils.

ASSEMBLY

Unfold each Gabion on a flat, hard surface and remove any shipping fold. Lift up the sides, ends and diaphragms into a vertical position to form an open box shape (Fig.1). Connect the back and the front panels of the gabion to the end panels and center diaphragms. The top corner of the end panels and center diaphragms have an extended selvedge wire extending approx. 100mm out from the corner edge. Raise the end panels and the diaphragms to a vertical position and wrap the selvedge wire around the edge wire of the top and back panels. Connect the edges of the gabion and diaphragms by using either lacing wire or ring fasteners (Fig.2). Ring fasteners shall not be spaced more than 150mm apart. The procedure for using lacing wire consists of cutting a sufficient length of wire and twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening and finally securing the end of the lacing wire to the wire mesh. Place the diaphragms into the vertical position, and wire them to the side panels in the same manner.

INSTALLATION AND FILLING

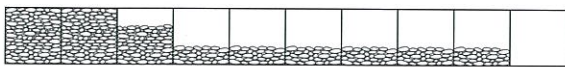
After the foundation has been prepared, the pre-assembled gabions are placed in their proper location to form the structure. Gabions shall be connected together and aligned before filling the baskets with rock. Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure. Gabion rocks shall generally range between 100mm and 200mm. During the filling operation some manual stone placement is required to minimize voids. The exposed faces of vertical structures may be carefully hand placed to give a neat, flat and compact appearance. The cells shall be filled in stages so that local deformation may be avoided. That is, at no time, shall any cell be filled to a depth exceeding 300mm higher than the adjoining cell (Fig. 3). Care should be taken when placing the stone to assure that the PVC coating on gabions will not be damaged. Stiffeners shall be positioned as indicated (Fig. 4), fixed at 1/3 and 2/3 of the height for 1 m gabions as the cell is being filled. All corners should be securely connected to the neighboring gabions of the same layer before filling the units. When more than one layer of gabions is required the next layer of gabions must be connected to the layer underneath after this layer has been securely closed (Fig.5).

CLOSING

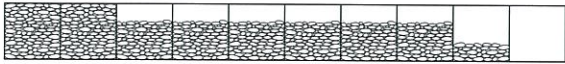
To allow for settlement, level off the fill 25-40mm above the top of the mesh. Be sure to keep the top edge of the diaphragm exposed. Fold the lid down, pull the edges of the panels to be connected where necessary using an appropriate tool as a lid closer. The lids shall be tightly laced along all edges, ends and diaphragms in the same manner as described for assembling (Fig.6). Adjacent lids may be securely attached simultaneously. All end wires should then be turned in.

Fig.3

PHASE 1



PHASE 2



PHASE 3

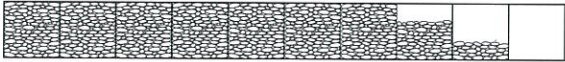


Fig.5

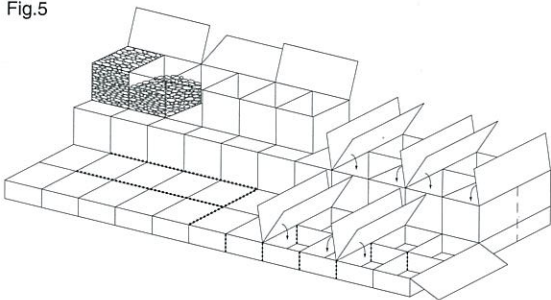


Fig.4

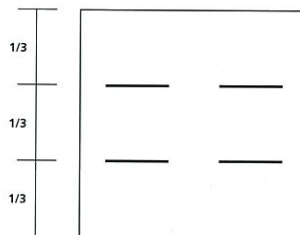
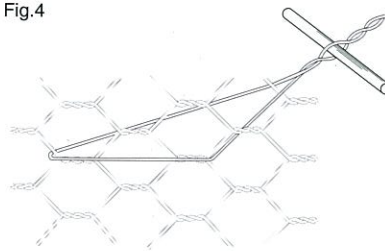
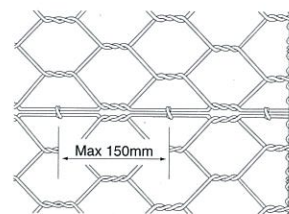
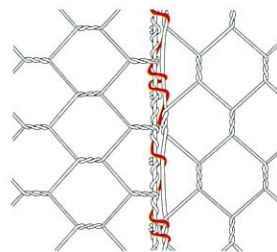


Fig.2

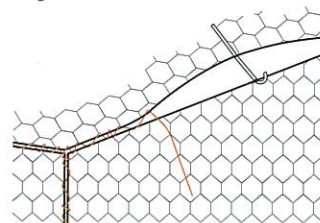


Closing with ring fasteners



Closing with lacing wire

Fig.6



RENO MATTRESS

MATERIAL DELIVERY

Reno mattresses are manufactured with all components mechanically connected at the production facility with the exception of the lid, which is produced separately from the base, as specified in ASTM A975-97. All Reno mattresses are supplied in the collapsed form, folded and bundled. The bundles are compressed and strapped together at the factory for easy shipping and handling. Lacing wire is shipped in coils.

Fig.7

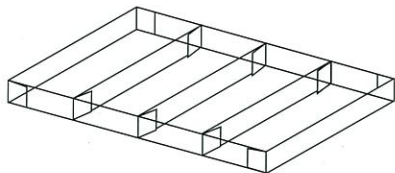
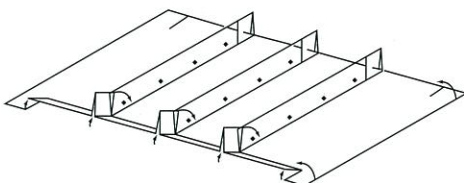
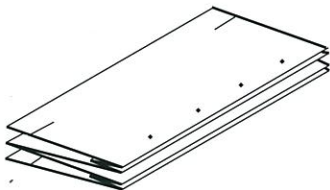
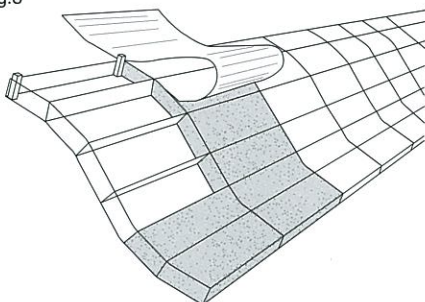


Fig.8



ASSEMBLY

Lay the mattress on a flat, hard surface. When units are unfolded for assembly, they will have one or two shipping folds, which must be removed. At the corners, fold the end flaps along the sides and lace up the joint (Fig.7). The mattresses should be assembled individually, by erecting the sides, ends and diaphragms, ensuring that all creases are in the correct position and the tops of all sides are level. Connect the edges of the mattress by using either lacing wire or ring fasteners (Fig.2). Ring fasteners shall not be spaced more than 150mm apart. The procedure for using lacing wire consists of cutting a sufficient length of wire, and twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening and finally securing the end of the lacing wire to the wire mesh.

INSTALLATION AND FILLING

The foundation on which the mattresses are to be placed shall be cut or filled and graded to the line and level. Apart from the requirement of line and level, the foundation for Reno mattress work needs to be level, smooth and compacted.

After assembly, the mattresses are placed in their proper location and securely attached to the adjacent ones. For structural integrity, all adjoining empty units should be connected along all the edges of their contact surfaces, in order to form a monolithic structure. Mattresses should be placed and securely attached while empty. Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure. Reno mattress rocks shall generally range between 75mm and 150mm. Care should be taken when placing the stone to assure that the PVC coating on mattresses will not be damaged. Some hand placing is necessary to ensure the void ratio is kept to a minimum.

CLOSING

To allow for settlement, level off the fill 25mm above the top of the mesh. Be sure to keep the top edge of the diaphragms exposed. Lay the lid down, pull the edges of the panels to be connected where

necessary using an appropriate tool as a lid closer. The lids shall be tightly laced along all edges, ends and diaphragms in the same manner as described for assembling. Adjacent lids may be securely attached simultaneously. Securely attach the lids to the ends of the mattresses and then securely attach them to the sides, and diaphragms, using alternate double and single loops, or steel wire ring fasteners. In cases where a number of adjacent bases are to be covered at one time, rolls of mesh can be used in place of unit size lids (Figs. 8).



RRE ENGINEERING SDN. BHD. (520469-P)

Lot 119, Jalan Industri 6, Kawasan Perindustrian Jerantut,
27000 Jerantut, Pahang Darul Makmur.

Tel : +609 266 2854 / 267 1854 Fax : +609 266 7054

Mobile/Whatsapp : +6013 984 9854

Website : www.rreeng.com Email : info@rreeng.com

