

Table 2

MacMat® Physical Characteristics

Style	Mesh Type	Wire Diameter in (mm)	Thickness in (mm)	Length ft (m)	Width ft (m)
MacMat®R6	6 x 8	0.087 (2.2)	0.40 (10)	82 (25)	6.5 (2)
MacMat®R8	8 x 10	0.106 (2.7)	0.80 (20)	82 (25)	6.5 (2)
MacMat®N10	N/A	N/A	0.40 (10)	500/90 (152.5/27.5)	3.25/6.33 (1/1.9)
MacMat®N20	N/A	N/A	0.70 (17)	277/90 (84.5/27.5)	3.25/6.33 (1/1.9)

MacMat®R6 and MacMat®R8 are available in Galfan® coated or Galfan® and PVC coated wire.

Note: All sizes and dimensions are nominal.

Please see the separate MacMat® technical data sheets available from Maccaferri or www.maccaferri-usa.com.

MacMat® Research and Development

Maccaferri is committed to the improvement of its solutions through research and development.

The Utah State Water Research Laboratory was commissioned to identify the shear stress limits of MacMat® under various hydraulic conditions within highly erodible channels.

Both vegetated and unvegetated MacMat® solutions were tested in a 4 foot (1.2 m) wide flume at various water velocities, ranging from 2 to 20 ft/s (0.6 m/s to 6 m/s), for periods of up to 60 hours.

The following conclusions were drawn from the testing regime:

- The presence of the reinforcing steel wire mesh (in MacMat® R) improves the performance of the mat, especially after vegetation has established.
- The selection of the appropriate erosion control solution must be based upon its stability during the critical period of vegetation establishment—i.e. always base the design upon unvegetated performance parameters, so that soil erosion is minimized. By keeping the soil in place throughout the growing period, the solution maximizes the potential for vegetation to establish successfully.
- Vegetation established through the erosion control material will contribute to the formation of a thicker, stronger and more durable layer of reinforced soil surface.

MacMat® Design Criteria

Various factors affect the erosive action of water (rainfall runoff or flow) and have to be considered when evaluating erosion control solutions:

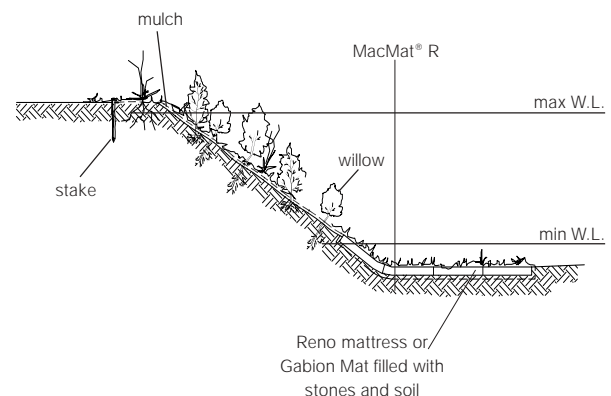
- Flow velocity
- Flow depth
- Bank slope angle
- Water course geometry
- Flood / storm duration
- Adherence of the protection to the slope
- Effectiveness of the protection at the toe of the slope.

Design parameters for MacMat® TRMs were generated by applying Factors of Safety to the results of the Utah State research, to allow for variables in the design process.

Table 1 shows the allowable design shear stresses for MacMat® solutions resulting from the research.

Fig. 3

Typical proposal for re-vegetation of river banks subject to erosion



Installation Guidelines

MacMat® is manufactured with one rough and one smooth surface. The material should be unrolled onto the slope with the smooth side in contact with the soil.

Site preparation

- Grade and compact the slope to a smooth even surface.
- Leave the last 1-2 inch (25-50 mm) layer of soil loose to minimize soil pockets and improve seed germination.
- When used as an erosion control mat, the seed and fertilizer can be applied either before or after the MacMat® is installed.
- When used as turf reinforcement, place the top soil and seed (or hydroseed) *after* the MacMat® has been installed.

Anchoring

- Use 6-12 inch (150-300 mm) U-shaped, 8 gauge, metal staples to anchor the mat to the slope.
- Fasten anchors through the TRM and drive flush with the soil surface to provide the maximum pullout strength and slope stability.

Tie-down trenching

- A simple fold into the slope is normally sufficient to anchor MacMat® R. For highly erodible soils, excavate a trench approximately 12 inches (300 mm) deep by 12 inches (300 mm) wide and anchor the mat along the bottom of the trench.
- Backfill and compact to an even surface.

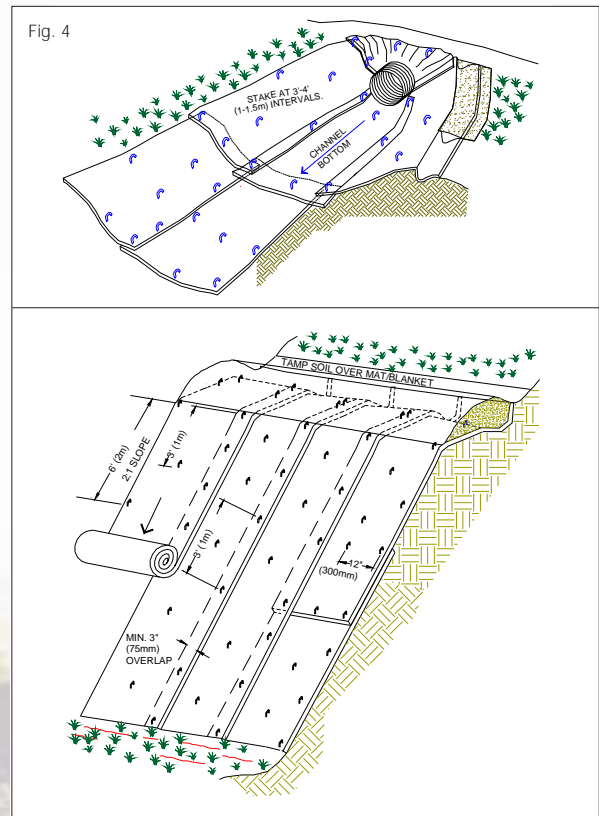
Channel linings

- For channel linings, lay the MacMat® parallel to the direction of the flow (see Fig. 4).
- Adjacent panels of MacMat® should be overlapped like shingles.

Anchor spacing and overlapping

The user shall establish the anchor specifications and spacing recommendations depending upon the existing soil and site conditions. Typical details (see Fig. 4) are:

- Space anchors at 3 foot (1 m) intervals along the top edge of the embankment slope and along the bottom of the tie-down trench 2-3 feet (600-900 mm) back from the top edge of the slope.



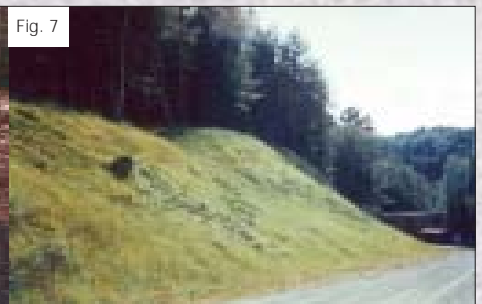
- For slope angles of 1:1 (or flatter) and channel linings, install anchors at 3 foot (1 m) intervals perpendicular to the angle of the slope and 4 foot (1.2 m) intervals (staggered) parallel to the angle of slope. For steeper slopes, comply with the engineer's recommendations.
- MacMat® edges shall be anchored together with a minimum of 3-4 inches (75-100 mm) overlap.
- MacMat® R does not need to be overlapped. The integral steel wire mesh enables adjacent panels to be connected directly to one another using staples or 'hog rings', depending upon your application.



After installation and before vegetation



Adjacent MacMat® R panels connected using 'hog rings'



After vegetation

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