MESHES, MATS, AND BLANKETS

WHAT ARE THESE?

Erosion control meshes, mats, and blankets are used as a soil cover and a protective barrier to control erosion and/or allow vegetation to establish on steeper slopes and higher erosion risk areas, including stockpiles. Certain types of mesh, mats, and blankets can also be used in flow paths and drainage channels as scour protection. These controls can be thick or thin, made from biodegradable fibres or synthetic materials, and can be open mesh, full coverage, or a combination. When applied correctly they are one of the most effective ways to control erosion on disturbed land and can assist in weed suppression while allowing native vegetation to re-establish.

WHAT DO I NEED TO DO?

Before starting site works:

Identify where erosion risk is greatest on your site and where lesser controls may be ineffective. For example, consider areas of bare soil on slopes steeper than 3:1 (H:V), or steep drainage channels receiving high flow velocities. Consider likely delays in building and construction work or site rehabilitation. These situations may benefit from the soil being covered with meshes, mats, or blankets, which provide instant erosion protection and have a wide variety of lifespans and weave sizes to choose from. When deciding on a product, consult the supplier or manufacturer and read the product specifications to select the right product for the application, and make sure that you understand the correct installation procedure. The longer the service life of the product, the greater the protection provided against the erosive force of water.

Make note of areas where meshes, mats, or blankets will be used in your approved ESCP (see page 17) and ensure the purpose and maintenance schedule for the control is included in the site inductions for that phase. A brief description of erosion control mats and blankets is on the next page.

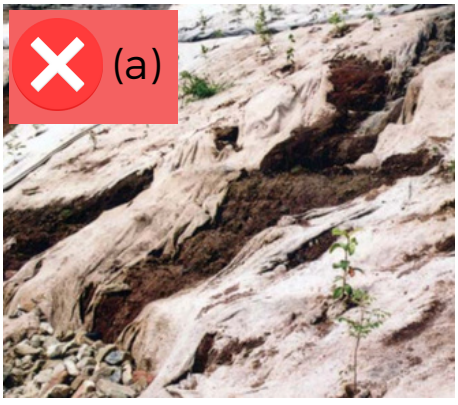
Erosion control mats (ECMs): ECMs are usually a biodegradable mat (e.g. jute or coir), with or without a synthetic reinforcing mesh. ECMs are generally applied to soils subject to concentrated flow such as drainage channels and suit a wide variety of flow conditions depending on the product. Organic and 100% biodegradable mats are suitable for short term applications where the volume and velocity of flow is low. Mats reinforced with non-UV stabilised synthetic mesh are suitable for longer term use but can be a danger to wildlife that can get entangled in the thin webbing. Permanent mats (e.g. turf reinforcement mats - TRMs) are thicker and more durable, and usually contain black UV stabilised mesh. When correctly installed, reinforced mats and permanent mats can tolerate high volumes and velocities of flow.

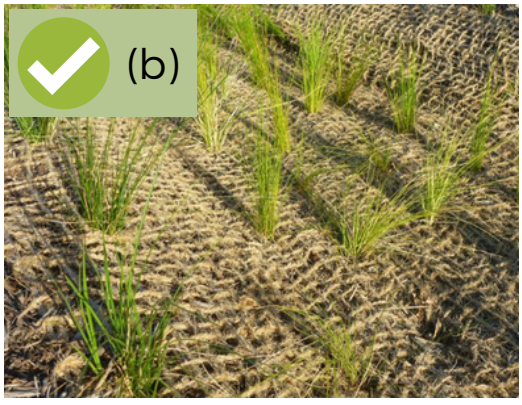
Erosion control blankets (ECBs): ECBs are generally used for establishing and reinforcing vegetation on slopes. They can be made of the same materials as ECMs, but their application is usually to control sheet-flow erosion, such as on batters with a slope steeper than 3:1 (H:V). Thin blankets allow seedlings to grow up through the blanket and have a similar effect to light mulching. Thicker blankets suppress weed growth, while allowing seeds sown by hydro-seeding on top to grow down through the blanket. The effect is similar to heavy mulching.

Installing the controls:

Install erosion control mats/blankets as soon as possible after soil disturbance to prevent rain and wind erosion (Figure 10). Installation varies depending on the type of product – consult the manufacturer or distributor for information. Key factors to remember when installing erosion control mats/blankets are listed below:

- Remove surface irregularities from the target area and prepare with seed if required.
- Always anchor the upper edge of the mat/blanket by burying within a 300mm deep and 150mm wide trench, backfill, compact, and staple at an interval specified by the manufacturer/distributor.
- Where more than one mat/blanket is used down the slope/channel, always overlap each by 300mm, with the bottom edge of the upslope mat/blanket placed over the downslope one. Remember to bury the upper edge of the downslope mat/blanket.





(a) Failed erosion control blanket due to poor surface preparation and water getting under the mat *(image from Landloch Pty Ltd.)*

(b) Well installed erosion control blanket with seedlings establishing *(image from Triton Environmental).*

- Always ensure that the erosion control mat/blanket makes good contact with the ground so that no water passes underneath.
- Erosion control mats/blankets which are synthetically reinforced with thin mesh webbing should be avoided near waterways and in bushland where they may entangle animals.
- Erosion control mats/blankets CANNOT be placed directly over dispersive soil (see page 36); minimum 100mm of non-dispersive soil must be correctly added over the dispersive soil prior to the placement of the mat/blanket.

Maintaining the controls:

Regular inspection, especially after rain events, is essential to check if the mat/blanket has been displaced by water or wind, if there are rips or tears in the material, or if water is running under the material. If so, restabilise with correct installation, anchor pins or wooden stakes. If significant erosion has occurred, repair the material and reassess/rearrange other drainage and erosion controls to reduce further impact. If erosion has caused rilling under the mat/blanket, re-grading may be necessary prior to reseeding (if required) and replacement of the mat/blanket. Continue inspections until vegetation is well established with adequate coverage to prevent erosion.

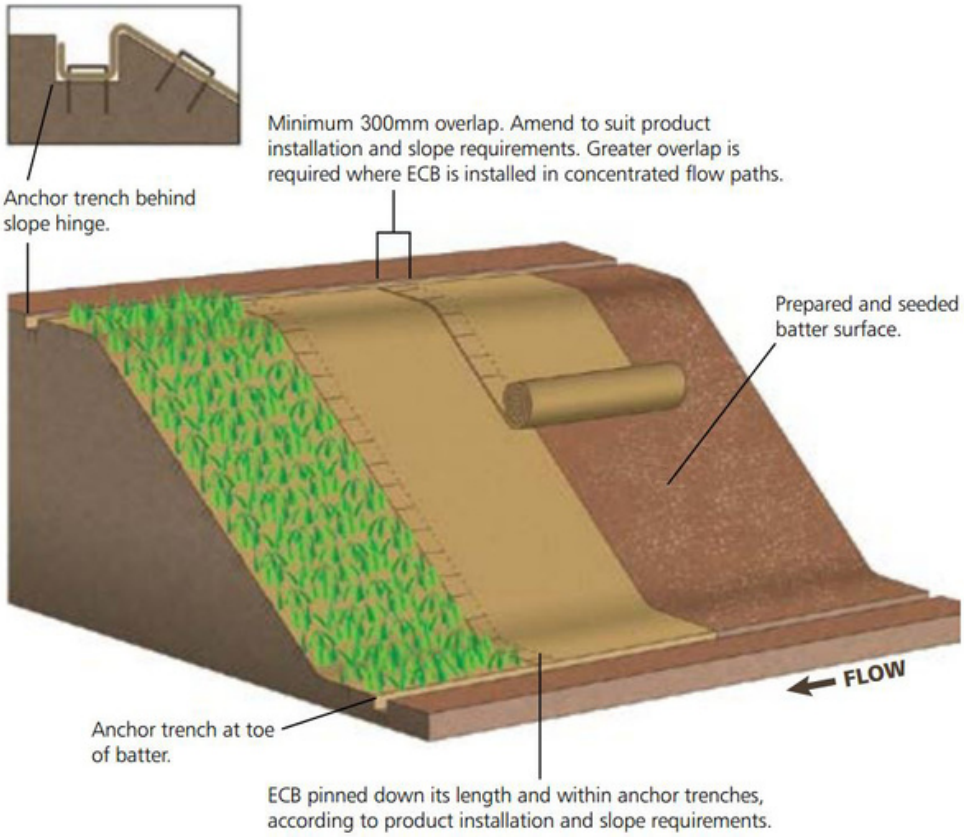


Figure 10: Correct erosion control blanket (ECB) installation showing the anchoring depth and overlap direction and width. *Figure from Roads and Maritime 'Guideline for Batter Surface Stabilisation using vegetation Fact Sheet 10'.*