

Enviromat[®]

Biodegradable Erosion Control Blanket



Protects
Minimises Soil Loss
Prevents Moisture Loss



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Soil erosion is a problem for every engineer. Effective prevention of soil erosion is best achieved through immediate treatment of exposed slopes. Such treatment minimises soil loss and stimulates vegetative growth. Enviromat® provides the solution.



What is Enviromat®?

Enviromat® is a biodegradable erosion control blanket that stabilises disturbed soil until vegetative cover is achieved.

Enviromat® consists of poplar woodwool contained within an external polypropylene mesh. It degrades with exposure to ultraviolet light and climatic conditions, with typical installations lasting between 12-36 months.

Enviromat® protects the topsoil and seed from:

- surface erosion from rainfall impact
- moisture loss through evaporation
- temperature extremes

Enviromat® works by protecting the soil from raindrop impact and reducing overland flow velocity.



Where is Enviromat® used?

Enviromat® is typically used in or around:

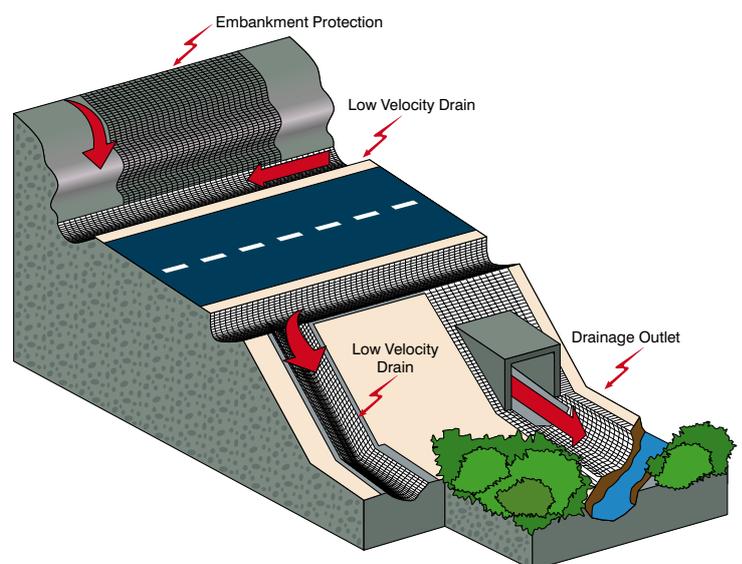
- embankments
- areas with heavy initial rainfall
- low velocity drainage channels
- areas subject to snow cover

Enviromat® is installed following surface preparation and seeding.

Research shows Enviromat® significantly reduces soil loss in embankment applications.

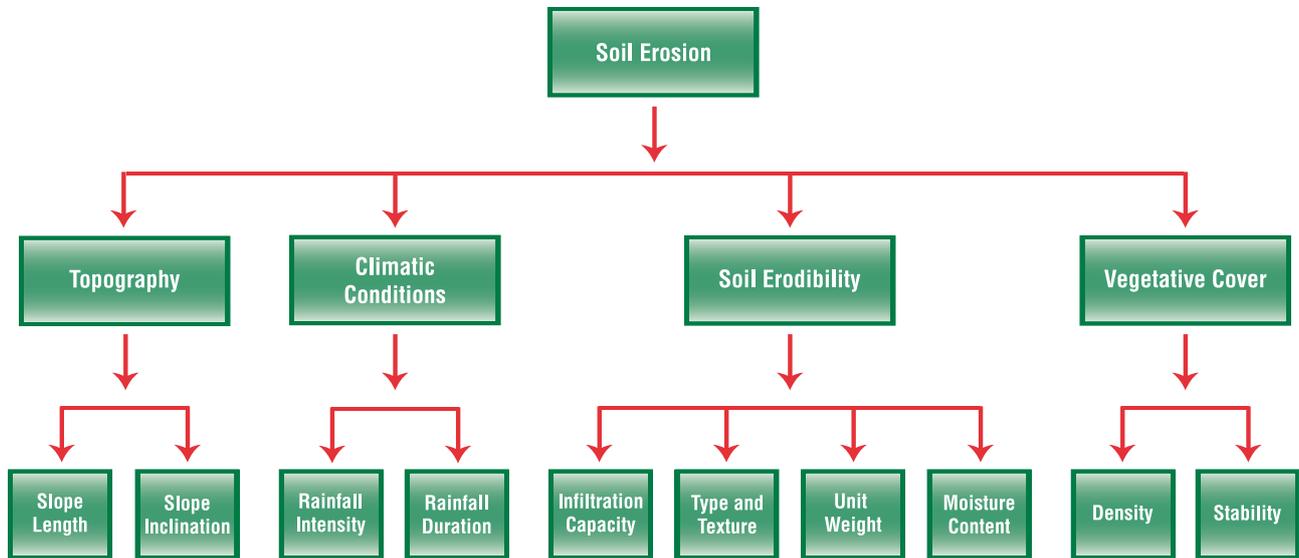
Rainfall Intensity	Rainfall Duration	Initial Soil Condition	Soil Loss c.f. Unprotected Embankment
40 mm/hr	1 hr	dry	6%
40 mm/hr	1 hr	wet	25%
75 mm/hr	20 min	wet	32%

Source: Jason Consultants (1985)



General Considerations

Interrill, or raindrop driven, erosion requires the following characteristics to be addressed:



Adapted from Ruston & Wegget (1993)

Enviromat's temporary protective layer controls soil detachment by reducing raindrop impact and overland flow velocity.

The Vegetative Cover

Cultivation and establishment of vegetative root systems reduces the likelihood of slip. **Enviromat**® stabilises the soil and protects seed and young plants during their most vulnerable phases. As the vegetative cover provides the long-term stability, the selection of seed type is critical to the long-term success of the installation.

The seed mix is to be selected and combined on the basis of:

- short-term and ongoing cover crop performance
- long-term viability, i.e. their ability to produce subsequent generations of plant
- root structure, i.e. the ability to form a continuous network within the soil
- their relationship to the surrounding vegetation

Topsoils in undisturbed areas typically carry a bank of seeds that lie dormant until conditions are right for germination. Seeding of disturbed areas should be carefully considered, catering for the variety of climatic and soil conditions expected over time.

Material Properties

Rolls:

- 50 m long x 2.5 m wide
- approx. 120 m² coverage (excluding over laps)
- approx 50-60 kg in weight
- individually plastic wrapped

Poplar Woodwool:

- density of approx. 400-500 g/m² @ 20% moisture
- shredded branch and trunk material only
- 100% seed free

Mesh:

- brown/natural biodegradable polypropylene mesh
- treated with UVS additive
- mesh dimensions 9.4 x 8.5 mm
- typical life 12-36 months (UV dependent)
- breaking load 820 x 580 N/m

Pegs:

- poplar wood
- min. 3.1 mm diameter
- min. 270 mm length x 21 mm wide x 9 mm thick with 8 x 50 mm hold down dowel insert

Enviromat® is a sterile product that does not import unpredictable organic materials or unwanted seeds onto site. No adhesives or chemicals have been used.

Installation

The installation of **Enviromat**[®] is the final step in establishing the soil profile, and comprises:

- topsoil to be of adequate depth to provide a seedbed
- consistent distribution of seed across the topsoil

Slopes up to 18° (1:3) are most suited to **Enviromat**[®] being installed along the slope.

Installation is to proceed from the base of the embankment upward, with upper rolls being laid on top of the lower rolls.

Slopes steeper than 18° (1:3) require the **Enviromat**[®] be rolled from the top of the embankment down to the toe.

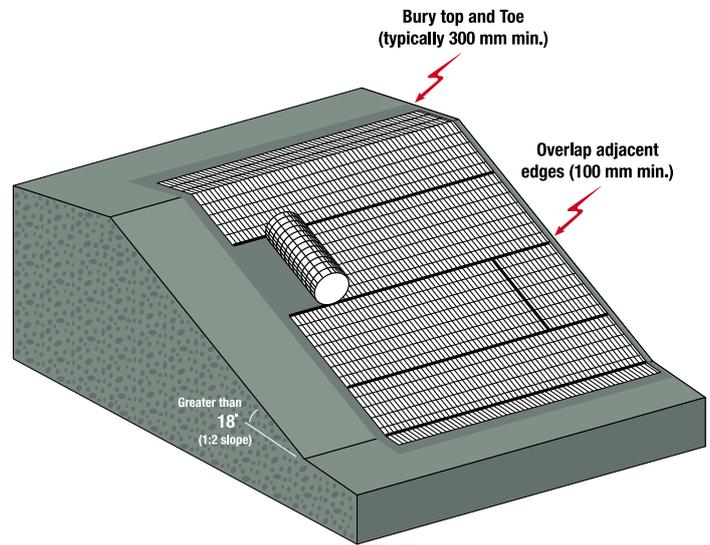
The top and toe of the **Enviromat**[®] blankets are to be pegged and buried to provide additional resistance to movement (min. 500mm).

A minimum overlap of 100mm between adjacent rolls is required.

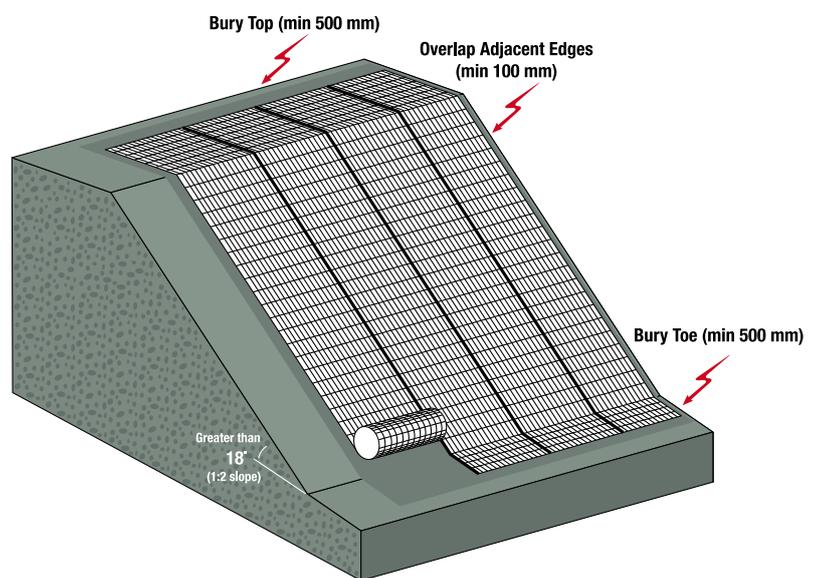
Connection of the **Enviromat**[®] to the soil below is via pegs. The pegging detail for an **Enviromat**[®] installation is dependent upon site conditions, however a typical spacing is approximately 1 metre centres.

Long slopes require additional pegs near the toe of the slope. Drainage channels require pegs at closer centres to resist peak flow velocities.

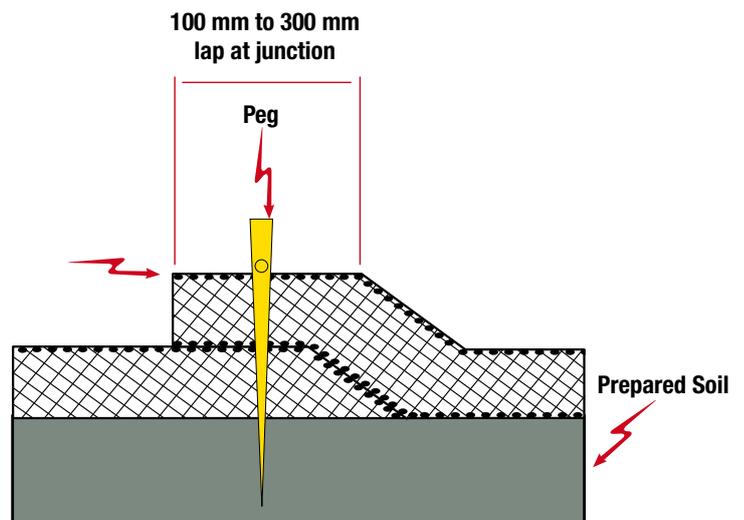
The average installation rate is 4-5 rolls per hour. Consideration of overlap details is required when determining quantities.



Slopes less than 1:3



Slopes greater than 1:3



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