

Storage, handling and laying guide

Enkamat[®]; Enkamat[®] A20

Storage of Enkamat

It is advisable to store Enkamat in its original wrapping; covering of any rolls remaining in the open for long periods is recommended.

Handling Enkamat A20

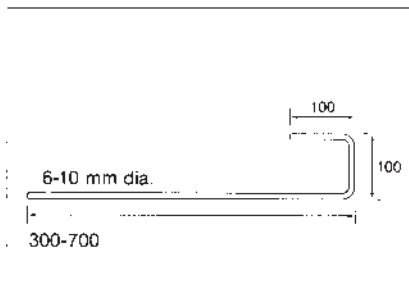
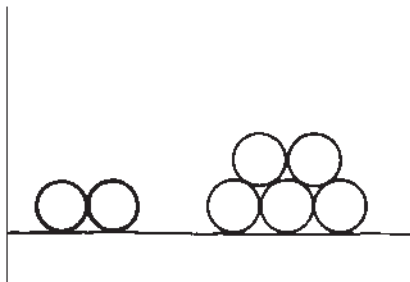
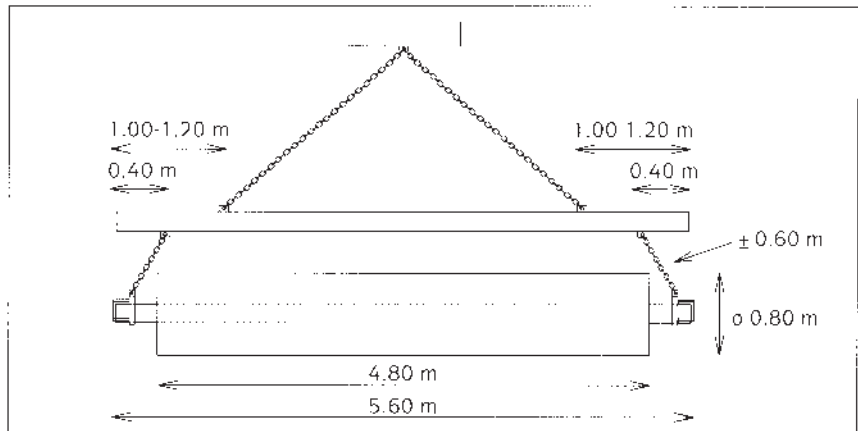
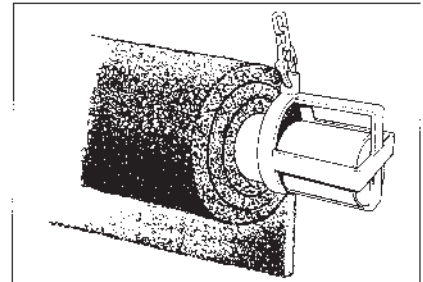
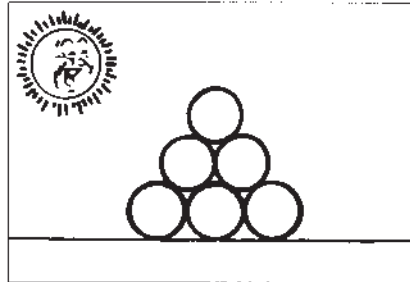
To unload Enkamat A20 without damage the hood of the truck must be removed. For transportation on site and installation two endcaps and an extra steel pole are provided. The contractor shall alter the steel pole into a cross-bar as shown in the drawing. The user will need to provide chains and shackles to permit the safe handling of rolls weighing 2.5 tonnes. No other equipment should be substituted for the items provided. The empty poles and the remaining attributes are returnable after installation by Colbond Geosynthetics.

Storage of Enkamat A20

Enkamat A20 will be delivered on rolls with a diameter of approx. 0.80 m. The rolls should not be stacked more than two rolls high. During hot conditions rolls of Enkamat A20 should be covered to prevent softening of the bitumen.

Fixing pin details

The diameter and length of the fixing pins shall be chosen to suit the site and soil conditions; minimum dimensions are 6 mm diameter and 300 mm length for Enkamat, whereas Enkamat A20 requires minimum values of 8 mm diameter and 500 mm length. We advise to use ribbed mild steel.



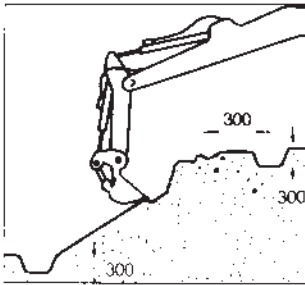
Note:

As vegetation is an integral part of the Enkamat erosion control system, the establishment of a vegetative cover is an important factor which should not be underestimated.

For this reason the following points should be considered:

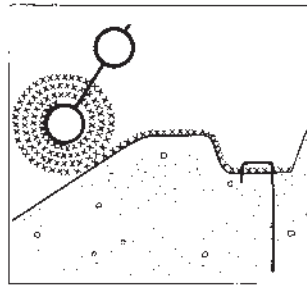
- Soil conditions under the Enkamat should be capable of supporting good growth.
- Seed mixtures should be chosen to suit the particular soil and climatic conditions, as well as the land use.
- The use of fertilisers and hydrophilic materials can prove beneficial in establishing vegetation.

Laying guide Enkamat



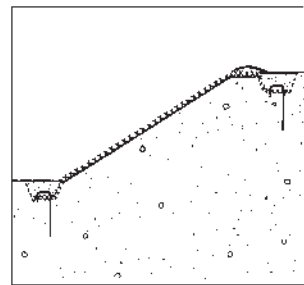
1. Excavation

Excavate the slope to a smooth profile, free from vegetation, roots, stones, etc., filling any voids. The slope must be stable and properly compacted, in particular in the backfilled areas. Excavate anchor trenches at the toe and shoulder of the bank not less than 300 mm deep (see overleaf for alternative details). If the soil is of poor quality, the surface layer should be improved by the inclusion of well compacted top soil.



2. Laying

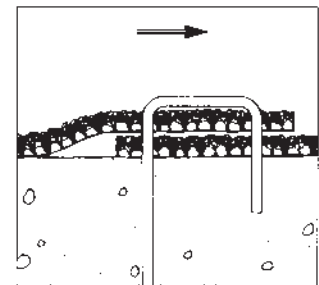
Place the matting in either trench, pin at 1 metre centres, unroll Enkamat and slightly tension. Enkamat 7220 and 7210 should be laid flatback down. Work either from the shoulder down or from the toe up; we advise against longitudinal installation on steep slopes. Cut to the length required with a sharp blade and pin at 1 metre centres into the other trench.



3. Backfilling the trenches

Backfill the anchor trenches and compact.

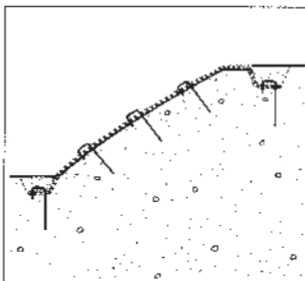
Important:
Concentrations of surface water run off should be prevented from flowing over the newly laid slope either by a small bund along the shoulder or diversion through gutters or pipes laid on the slope.



4. Securing of overlaps

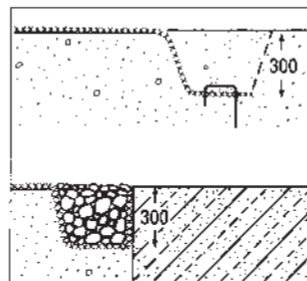
In watercourses overlaps of 150 mm min. should be made with the upstream section laid over the downstream section. All overlaps should be pinned at max. 1 metre centres; in severe conditions additional pins at 500 mm centres are recommended. Particular attention should be paid to pinning at water level. On dry slopes overlaps of 100 mm are required.

Important:
Enkamat is an erosion control material, and will not increase the internal stability of unstable slopes.



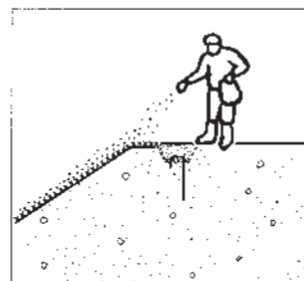
5. Intermediate pinning

It is essential to ensure total contact between Enkamat and the underlying soil. Intermediate pinning at regular intervals is required at high loadings. An ideal slope will be slightly convex. A concave slope should be pinned on a 1 m grid. Normal intermediate pinning would be at a rate of 1 pin every 2-3 m².



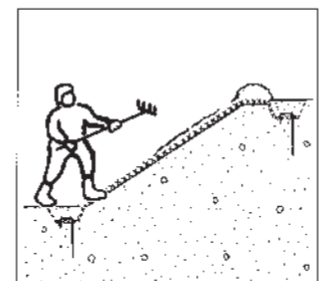
6. Securing the edges

Free edges, for example the upstream side of the mat, should be adequately secured; the connection to hard revetments or structures requires special attention. See overleaf for alternative details.



7. Seeding

Seed the empty Enkamat area above normal water level with 20 g/m² of suitable indigenous seed, and plant rhizomes or aquatic plants below normal water level (or spread some soil containing rhizomes prior to laying the Enkamat). 2/3 of the seed is to be placed into the open mat, the remaining 1/3 is to be sown on top of the finished profile. See note on page 1.

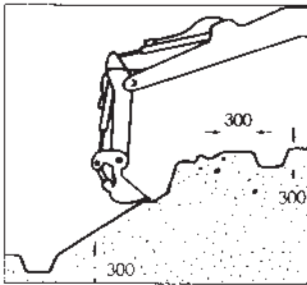


8. Topsoil filling

Rake in friable topsoil to give a cover of 10 mm to 20 mm over the Enkamat. Stone chippings should be considered where Enkamat is to be permanently submerged or subjected to high water velocities (approximately 15 kg/m² of 2-6 mm angular gravel to be raked in prior to topsoil filling of the upper section). The recommended soil cover results in optimum filling of the mat after natural compaction.

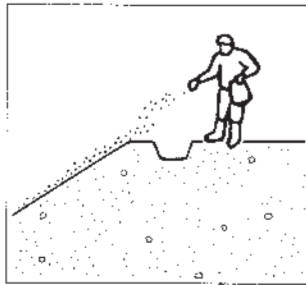
Important:
Intermediate pinning of the matting into any low spots should be carried out to ensure total contact between Enkamat and the soil below. However, it is best to backfill or reprofile all such low spots or voids.

Laying guide Enkamat A20



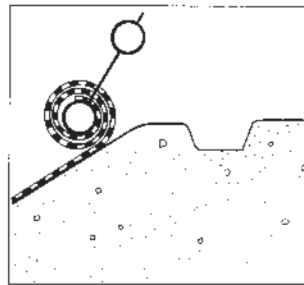
1. Excavation

Excavate the slope to a smooth profile, free from vegetation, roots, stones, etc., filling any voids. The slope must be stable and properly compacted, in particular in backfilled areas. Excavate anchor trenches at the toe and shoulder of the embankment not less than 300 mm deep. If the soil is of poor quality, the surface layer should be improved by including some topsoil.



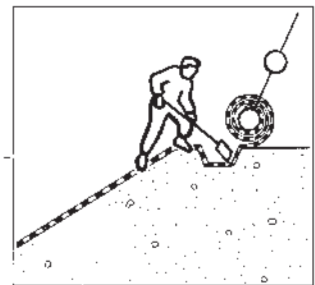
2. Seeding

Seed the area above normal water level with 30 gr/m² of suitable seed, and plant rhizomes or aquatic plants below normal water level (or spread some soil containing rhizomes prior to laying Enkamat A20). See note on page 1.



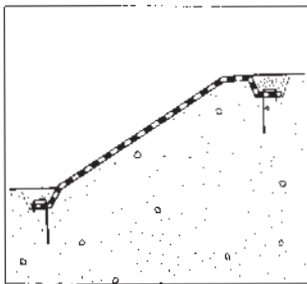
3. Laying

Place the matting in the trench, pin at 1 metre centres and unroll Enkamat A20. Work either from the toe up (recommended) or from the shoulder down; we advise against longitudinal installation. Keep the roll on or near the ground during installation to avoid unintentional unrolling. The installation of Enkamat A20 at temperatures below 5° C is not recommended.



4. Cutting to length

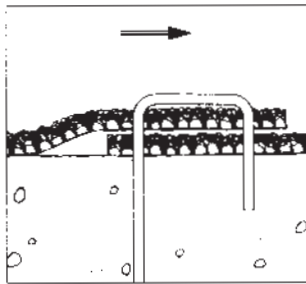
Cut to the length required with a spade or disc cutter. If the roll has to rest on the slope or close to the brink of the bank it should be secured to prevent uncontrolled unrolling. People should not work or stand on the downhill side of the roll for safety reasons. Eye shields should be worn when using a disc cutter. Pin the Enkamat A20 at 1 m centres into the second trench.



5. Backfilling to trenches

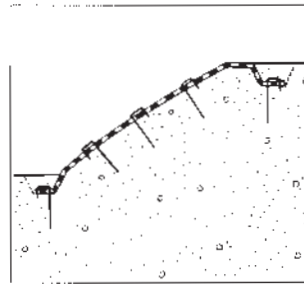
Backfill the anchor trenches and compact.

Important:
Concentrations of surface water run off should be prevented from flowing over the newly laid slope either by a small bund along the shoulder or diversion through gutters or pipes laid on the slope.



6. Securing of overlaps

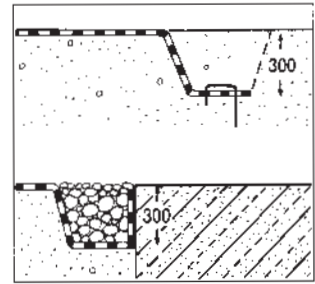
Overlaps of 300 mm should be allowed for adjacent sections laid 'in-the-dry', 500 mm if laid 'in-the-wet'. All overlaps should be formed upstream over downstream and pinned at 1 metre max. centres. In areas of turbulence or high velocities, pinning at 500 mm centres is recommended. Particular attention should be paid to pinning at water level and in the tidal zone.



7. Intermediate pinning

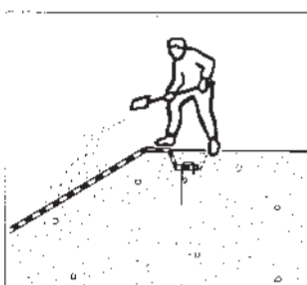
In severe conditions we recommend the placing of intermediate pins at a rate of 1 pin every 3-4 m².

Important:
Intermediate pinning of the matting into any low spots should be carried out to ensure total contact between Enkamat A20 and the soil below. However, it is best to backfill or reprofile all such low spots or voids.



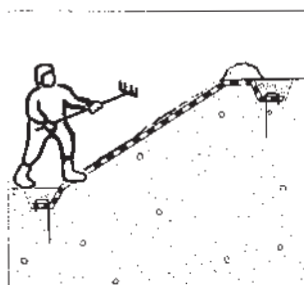
8. Securing the edges

Free edges should be adequately secured; the connection to hard revetments or structures requires special attention. See overleaf for alternative details.



9. Blinding

If laid during the summer months, Enkamat A20 should be blinded with a thin layer of sand or friable topsoil to prevent any heat absorption from damaging the seed (not more than a few mm cover).

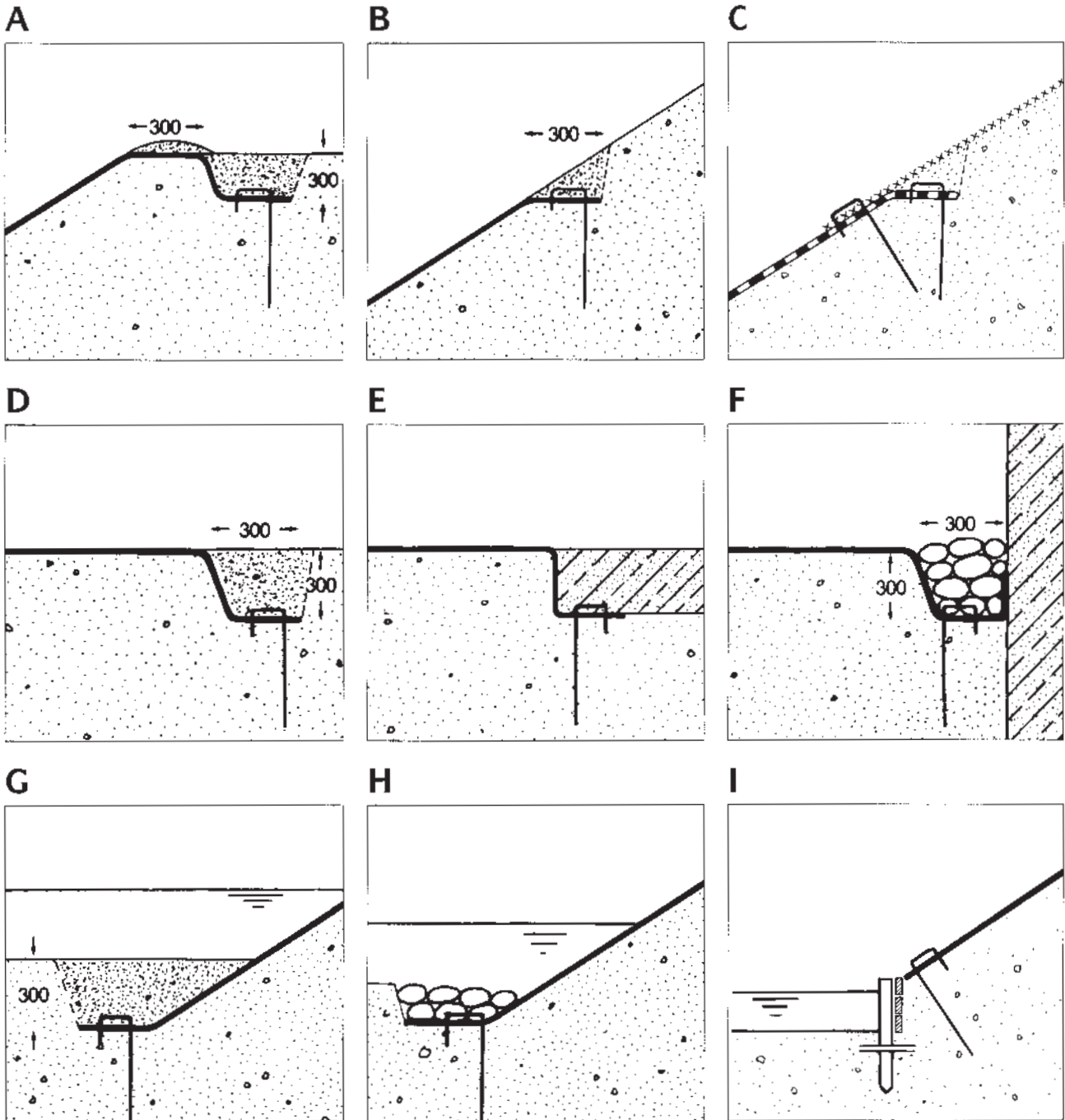


10. Enkamat A20 + Enkamat

When Enkamat A20 is used

in combination with standard Enkamat, first install Enkamat A20, secure the top edge in a trench at least 500 mm above normal water level, fill and compact, as shown overleaf. Lay standard Enkamat to overlap the backfilled trench, secure with pins at 250 mm centres and rake in topsoil to give a covering of 10 mm to 20 mm over the Enkamat (detail C).

Principal anchoring details for Enkamat and Enkamat A20



Note:
 All pins shall be placed parallel to the edges of the matting to assure optimum fixing efficiency
 (for clarity the pins have been shown above in the other direction).

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