

Geotextiles in golf course construction

Sometimes referred to as filter membranes or separation layers, geotextiles have a history of use in the construction industry going back some 20 years. Alan Cudmore manager for Geo Synthetics at Chemie Linz looks at their use on golf courses.

The industry has now defined the functions of geotextiles as separation, filtration, drainage, reinforcement, protection, and sealing. These functions are as important to golf course construction as they are to other forms of ground engineering, and it is not surprising to learn that whereas previously the only use of geotextiles in golf courses has been in separating the sand in bunkers from the ground below, that other and more varied uses are now commonplace.

Taking each function as defined, not only can these products be used in bunkers as a separation membrane, but consideration can be given to this use when constructing an access path or road when there is the need to perhaps separate a granular chip from the sub base in approaches to the Club House, or in car park areas where there is a need to separate the base course from sub base, or the base course from the surface dressing. Such products can be used to separate wood chips from the underlying ground



CONSTRUCTION



Geotextiles being used in the construction of a sports ground

where an all weather walkway is constructed.

The filtration function of geotextiles is well known and is used in conjunction with the separation function to allow rain water to pass easily through the geotextile without harming the separation function.

Used in drainage trenches geotextiles can separate the filter media from the surrounding earth, whilst enabling water to flow in easily without contamination of the filter media. Additionally perforated pipe drainage systems can be wrapped in geotextiles to perform the same function.

Geotextiles manufactured by the needle punching method also have the capacity to drain water within the plane of the material. Thus by installing one of the thicker varieties of this type below the surface of the area to be drained on a crossfall, new concepts of controlled drainage of rainfall can take place.

The reinforcement ability of a geotextile is best defined as placing a blanket below ground level to support material above, whilst separating the different soil layers to stop collapse of the

structure. A new concept of interest is the use of these products to provide reinforcement to near vertical earth embankments, by formation of retaining walls, consisting of the existing material within the embankment contained in mattresses of the geotextile. Such embankment can be made aesthetically acceptable by implanting vegetation through the geotextile.

The protection function of the geotextile is best illustrated by its use in conjunction with a geomembrane (impermeable liner) used to contain water in man made lakes. The geotextile prevents puncture of the liner by migrating flints from the ground surrounding the lakes. Another protection function is the use of the geotextile some 100-150 mm below the surface level of grass to enable root growth to penetrate and bind into it. When divots are taken from the grass surface the root growth remains intact, and the grass returns more quickly to the damaged area. Similarly any flints or other rubble migrating from below will be contained below the geotextile.

The function of sealing is to use the

geotextile as a host to a liquid material which hardens when set. The most wide use of this function is in resealing areas of roads and car parks whose surface are badly cracked or spalled. Both concrete or asphalt surfaces can be effectively sealed before the top dressing is applied to prevent the ingress of water. The function is also applicable to sealing flat roofs on existing buildings.

Based on these functions many derivative products are now available with such diverse capabilities as protecting bushes and plants from frost, protecting concrete from natural elements whilst setting, stopping weed growth and increasing crop yields. A definitive Design + Practice manual is available to enable designers to select the correct grade of geotextile.

For more information:

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