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CASE STUDY

Landfill capping using Enkadrain tricomposite

Waste storage facility, Villeparisis, France

The Villeparisis waste storage facility is one of the five hazardous waste storage facilities of the SITA FD, a subsidiary of the SUEZ Environment group. The site is authorized to receive 250,000 tons of industrial hazardous waste per year requiring regular refurbishment work.

Project owner
SITA FD

Product
Enkadrain tricomposite
5006H/5-s/200.50PET+7010

Function
Drainage and soil stabilization

Contractor
FLI France

Volume
15,000 sqm

Challenge

The works consisted of the refurbishment of 54 meter long 20° slopes capping some 15,000 sqm of industrial waste storage area. In accordance with the local regulations, a waterproofing system and drainage layer against rainfall have to be installed. Geosynthetics have been chosen as the solution to work with as they can provide easy to use, technically reliable proven solutions. The main task here was to ensure stability of the 30 cm covering soil above the waterproofing geosynthetic capping system above the membrane.

Solution

In such conditions, Enkadrain tricomposite offers a unique solution providing effective drainage with a strong reinforcement and soil stabilization providing significant cost and time savings. Enkadrain tricomposite 5006H/5-1s/200.50PET+7010 is made of a polypropylene geospacer combined with a polyester woven geotextile and a polyamide geomat (3D). All components are seamed together to form a product called tricomposite. Drainage, reinforcement and soil stabilization is implemented in a single operation allowing cost and time saving.

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General view of the refurbishing area

Covering soil installation with long shovel Caterpillar 325 BL

Benefits of the solution

The technical proposal ensures a safe and secure solution to meet the technical and regulatory objectives for drainage and soil stabilization. In addition, the use of Enkadrain tricomposite allowed the installer to reduce installation time and minimize trafficking on the geosynthetic layer. As a result the risks of potential damage during installation are reduced enduring the performance of the geosynthetics in addition to a reduction in costs.

Installation benefits

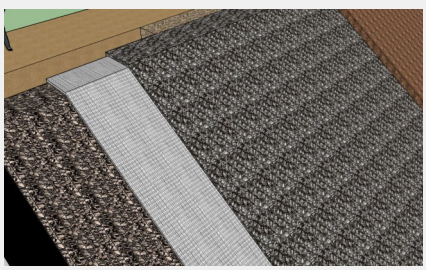
Taking into account the length of the slopes, a specific implementation methodology has been developed.
The topsoil was installed using a long reach Caterpillar 325 BL able to work at over 20 m from the bottom to the top of the slope to minimize trafficking on the geosynthetics during installation phases.

The excavator operated smoothly on a minimum thickness of 1 m of fill material to avoid dynamic loading and accidental damage to the geosynthetics. Rate of coverage was approximately 2,000 m² per day.

Result

Design was done according to the French standard NF G 38-067 including Eurocode 7 safety factors on dead loads (soil) and live loads (snow…) ensuring stability on each interface of the capping system. By using Enkadrain tricomposite, regulatory and technical requirements have been met at the same time as providing time and cost savings during installation ensuring the projects budgetary and time constraints were met.

Products used



Enkadrain tricomposite 5006H/5-1s/200.50PET+7010
Polypropylene geospacer combined with a polyester woven geotextile and a polyamide 3D geomat

7010 et 200.50PET
3D geomat and 200.50PET woven

5006H
5006H drainage core

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