

“REINFORCED WASTE” EMBANKMENT CAVAGLIA’ – BIELLA, ITALY

LANDFILLS

Product: Paragrid geogrids

Problem

The landfill site at Cavaglià is a category II, type B disposal area for non-hazardous special wastes. The current landfill site, the total authorised volume of which is 559,000 m³, adjoins a quarry owned by C.I.S., with which it shares a boundary with a length of approx. 280 m. In accordance with a request by the Provincial Administration of Biella, a design was submitted with the aim of managing and separating the quarry from the landfill.

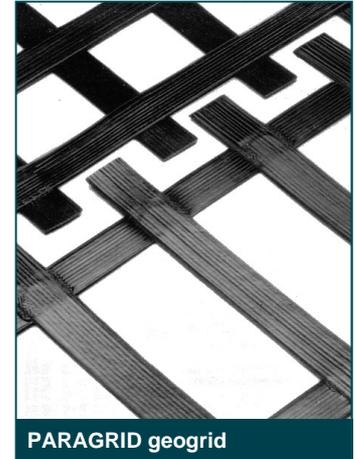
Solution

Paragrid 100/15 was selected as the most appropriate geogrid for reinforcing the 280 m common boundary. Paragrid features high tenacity polyester fibres, encased in a robust polyethylene protective sheath (see picture). The product offers very favourable long term design strength characteristics, compared to other geogrids, especially under the prevailing conditions in this landfill. The special waste gradually deposited in the landfill was used as the construction backfill to the geogrids.

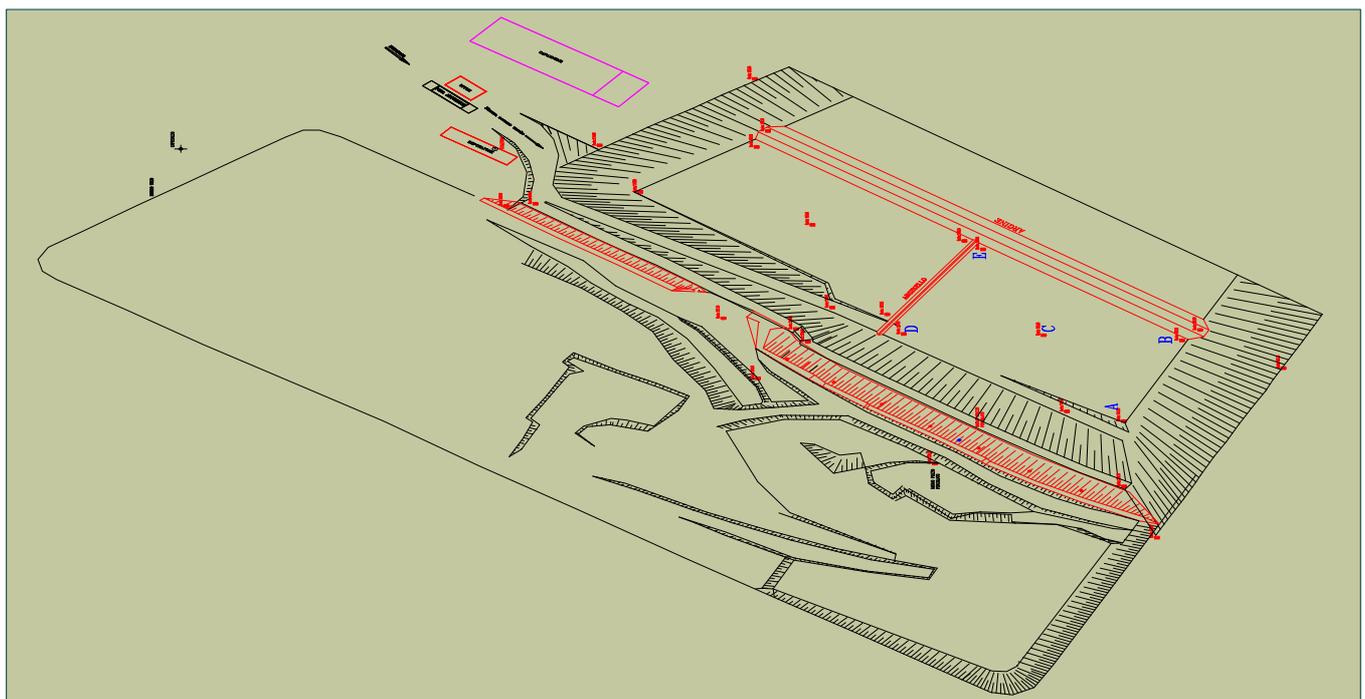
Construction of the reinforced soil slopes progressed using a ‘rising formwork’ method. Paragrids were placed horizontally within the slope, and the backfill compacted upon them. The formwork temporarily holds the geogrid face at the appropriate angle whilst backfilling and compaction takes place. At the appropriate level, the Paragrid is wrapped back into the slope, enveloping the compacted fill. The formwork is then removed, and lifted to support the next layer of geogrid.

This solution maximised the storage volumes available for waste and allowed the procurement of reinforcement to be staged, in line with the development of the landfill.

To contain leachate, an impermeable membrane was required on the base of the landfill, and was collected in drains at the toe of the reinforced soil slopes for treatment. The design solution resulted in considerable cost savings in the operation of the facility and increased the available landfill space compared to traditional slope em-



PARAGRID geogrid



Before construction



After construction

bankments.

This solution illustrates the partnering and collaborative approach Maccaferri now offers its clients. Over 130 years of technical know-how combined with a broad portfolio of systems, enable us to offer innovative and value-engineered solutions. In this case, the reinforcement of special waste was made possible using this knowledge.



After construction

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