



VAL FERRUA SECTION

A6 Motorway – Italy, 1990

PROJECT CHARACTERISTICS

Works: river training structure, reinforced soil structure, backfill embankment, slope drainage and rock bolting works, 2 culverts for the main river and 3 culverts for tributary creeks

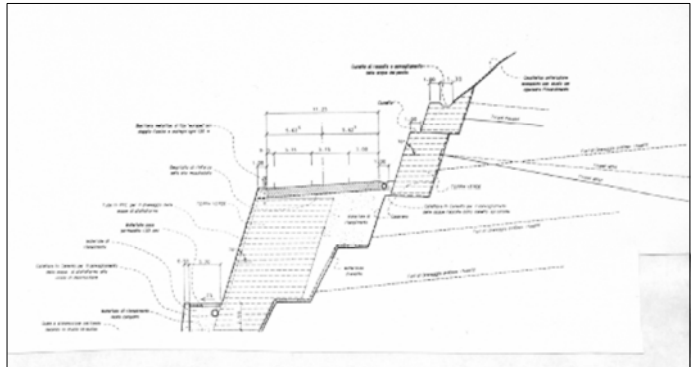
Purpose: support of a 4 lanes motorway and river crossing

Dimensions:

- height: 22 m
- embankment volume: over 100 000 m³
- length: 600 m
- facing slope angles: 70° over the horizontal

Materials:

- foundation: gravel, limestone rock;
- embankment: sand and gravel as structural fill, tunnel muck (marl) as backfill, steel bands as reinforcement, tendons, reinforced concrete.



PROFESSIONAL SERVICES PERFORMED

Geotechnical and geomechanical survey. Stability analyses, conceptual design and detailed drawings of the reinforced soil structure, of concrete retaining structures and of culverts.

Val Ferrua embankment, designed in 1990 and built in 1991, is located along the A6 Torino - Savona motorway, in the North West of Italy. The 4 traffic lanes are supported by a reinforced soil structure, which rests on a fill contained by a reinforced concrete wall. A river flows along the toe wall.

Ground waters have been intercepted behind and above the embankment by means of drain holes and geocomposites for drainage.

The river training wall, 480 m long and with a maximum height of 7 m, has been founded on small diameter tubular steel piles and anchored with 80 tons maximum capacity tendons.

Tendons with grouted bulbs have been foreseen to stabilise the cut slopes.

The reinforced soil structure, 10.5 m high and with a 70° outer slope, is reinforced with 8 - 10 m long steel straps connected to wire mesh front panels. A geotextile holds the top soil needed for a grassed surface inside the wire mesh.

The river passes twice under the embankment through reinforced concrete culverts. Three rectangular shafts, located upstream from the embankment, connecting to horizontal square culverts, underpass the road platform and convey surface waters to the creek.

