

WINCHESTER SERVICES, M3 MOTORWAY WINCHESTER, HAMPSHIRE

RETAINING STRUCTURES

Product: Gabions

Problem

The M3 motorway carries thousands of vehicles every day between London and the south of Britain. A new service area was required and was proposed in an area of ancient woodland. Local conservation groups were keen to preserve the natural environment and an enquiry had ruled out a reinforced concrete solution and therefore an alternative was required. Any proposed scheme had to fulfill a number of key criteria identified at the enquiry:

- The design had to conform to Highways Agency requirements for strengthened earthworks, with a minimum design life up to 60 years.
- It should offer a compact solution confined to a build footprint within the existing highway.
- It must meet concerns of local environmentalists for a 'natural' engineering solution.

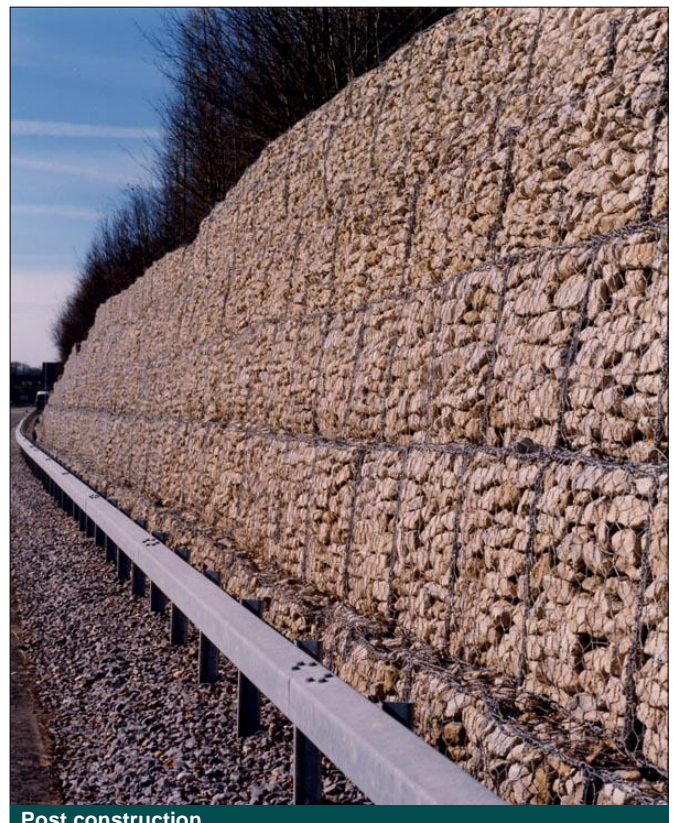
Solution

Consulting Engineers, Woods Warren approached Maccaferri to discuss alternatives that could fulfil all these demands. Where the slip roads to the service station cut into the motorway embankments, a retaining solution was required. The structures would be a maximum of 7.5m high and retain the land above the motorway.

Both carriageways of the M3 had to remain fully open during the construction phase. Gabion retaining structures offered the most effective solution. Cost effective, rapid to build and with a 120 year BBA certified design life, the gabions could also mimic the local chalk cuttings prevalent in the vicinity, when filled with local stone. Maccaferri designed and indemnified the structures. The gabion structure was battered at 6 degrees with 250mm steps at each course, providing a net face angle of 69 degrees.



Post construction



Post construction

Client name:

HIGHWAYS AGENCY

Main contractor name:

PJ CAREY CONTRACTORS LTD

Consultant:

WOODS WARREN

Specialist sub-contractor:

PC CONSTRUCTION LTD

Product used:

5500m³ GABIONS, GREEN TERRAMESH

Construction date:

APRIL—JULY 2000

Main contractor, P J Carey, subcontracted the gabion works to P C Construction, a gabion and soil reinforcement specialist. A total of 5500m³ gabions were installed at an average rate of construction of 140m³ gabions per night. Two gangs were used on opposite sides of the carriageway.

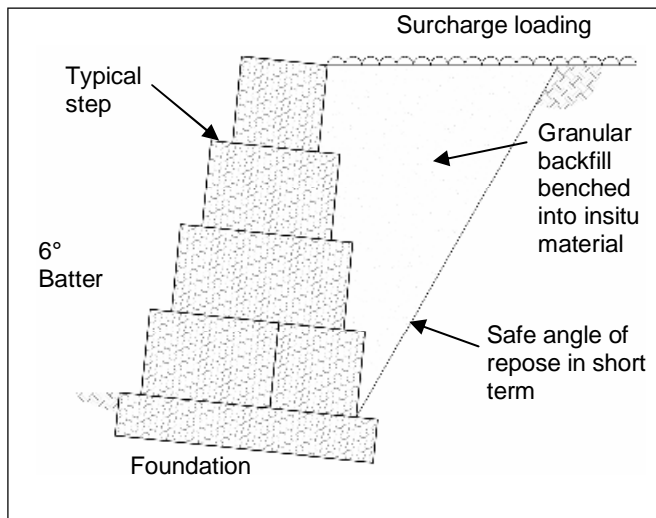
The gabion walls, were built within the 'hard shoulder' area. The lack of working room, and other site logistics, dictated that cutting the chalk slopes took place by day and the gabion walls were installed at night in a 24 hour 'round the clock' operation.

Project landscape architects McGregor Smith, recommended a natural stone finish. This will allow the walls to green up naturally with local vegetation and avoid importing alien species into a conservation area.

Elsewhere on the site, main contractor P.J.Carey installed a Maccaferri designed and supplied a BBA Certified Green Terramesh® reinforced earth slope. This system retained the southbound off-slip road to the service station. The vegetating face finish to the Green Terramesh® was selected as the reinforced earthworks faced the ancient woodlands, and a 'minimal impact' solution was mandated.



Post construction, North bound off-slip



Typical section



Post construction, North bound off-slip

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