

Second Severn Crossing Ro-Ro Ramp

Severn Estuary 1992



Client Laing GTM JV

Contractor Laing GTM JV

Reinforced Earth™ wire mesh facing system wins its first British Construction Industry Award.

The NCE commented that “It is unusual for a temporary structure to be entered for an award, but the Reinforced Earth Company’s TerraTrel Ro-Ro ramp is no ordinary structure. This is a creative, bold and cost effective solution.”

During the construction of the Second Severn Crossing, the caissons for the bridge piers were cast on land and transported 500 metres to a sea-going barge. The caissons were then placed on the sea bed and concrete filled. The operation required a 12 metre high jetty ramp to allow the transportation of caissons on crawlers (a combined weight of 2600 tons) to the waiting barges. These loads were the heaviest ever transported in Europe and the ramp was inundated throughout its life within the estuary’s 15m tidal range.

Reinforced Earth Company Ltd (RECo) ramps were chosen as the safest, most economical solution. It was also the least damaging to the environment of the sea bed as the ramp was built directly on the floor of the estuary. The structure has a steep slope face of 76° up to the jetty face, which was vertical. The edge of the crawler tracks were as close as one metre from the face of the Reinforced Earth structure. The fill chosen was 25mm to 200mm quarry rock backfill with high adherence reinforcing strips with lengths up to 10m. Erection and backfilling of the 4000m² structure took 3 months during the Autumn of 1992.

The first caisson was transported in January 1993, in all 37 caissons of various sizes were transported. At one point during an overnight storm a large sea barge slipped its moorings and collided with the ramp. An area of facing some 20m² was ripped away, causing many reinforcing strips to be ruptured. Reinforced Earth Company’s engineers examined the damage and made repair recommendations. The ramp was operational within 24 hours and again carrying caissons.