

M23 JN 8 - 10 MOTORWAY IMPROVEMENTS GATWICK, SUSSEX, UNITED KINGDOM

Reinforced Soil Walls and Slope Reinforcement

Problem

The M23 is a crucial part of the UK strategic road network connecting Crawley, Gatwick Airport and Brighton to the M25 motorway, which routes into London and the rest of the UK.

As part of the M23 junction 8 to 10 Smart Motorways scheme, Highways England proposed to upgrade 10 miles of the existing M23 to operate as a smart motorway by converting hard shoulders into permanent running lanes. This creates four lanes of carriageway in both directions between the junctions.

As part of the work, the northbound segregated left turn needed to be widened to allow an extra lane on the carriageway. This widening needed to utilise minimal space so as to not increase the project envelope.

Solution

Due to the small amount of available land a traditional reinforced earth solution would not fit. For this reason, the designers chose a hybrid reinforced earth and soil nail solution. This utilised Maccaferri's BBA HAPAS 120-year design life Green Terramesh with hollow bar soil nails through the front face.

The units have an integral steel mesh geogrid 'tail' which is installed within the compacted structural backfill to provide soil reinforcement. Green Terramesh units also feature a heavy-duty welded mesh panel behind the front face and bracing struts to support the face at the appropriate angle during construction, removing the need for external shutters or face support. As all these elements are incorporated into the unit at the factory, it reduces work on site and makes the installation much quicker and safer than with other 'soil bag' or wrapped face style geogrid structures.

Seeded topsoil is placed immediately behind the face to establish vegetation on the slope.

Once installed, vegetation is established fairly rapidly and once fully established contributes a natural appearance to the engineered solution. This provides habitat to flora and fauna whilst also improving local air quality through the absorption of CO2 from the atmosphere.

Client: HIGHWAYS ENGLAND

Designer / Consultant: CAN GEOTECHNICAL LTD

Contractor: Kier Group

Products used (Qty.)

- Terramesh 850m2

Date of construction: 03/2019 - 06/2019

[Google Maps](#)

[Google Earth](#)



Site before works began



Green Terramesh with soil nails installed



Green Terramesh and soil nails during construction



Green Terramesh and soil nails during construction



Completed structure



Vegetation established in Green Terramesh - note nail head