

LONDON GATWICK AIRPORT ACOUSTIC BUND GATWICK, SUSSEX, UNITED KINGDOM

Noise Barriers

Problem

Investment in Gatwick Airport was required to increase flexibility for aircraft operators and to accommodate the new Airbus A380 aircraft, soon to be joining fleets around the world. 100,000m² new aircraft stands and taxiways were to be constructed on the north-western side of the airport. The airport's nearest neighbours would be able to see the tail-fins of the A380 as the existing visual and acoustic bund at Gatwick Airport stands at only 8m high.

Committed to ensuring that any development does not negatively impact the local area, the then airport operator, BBA Airports Ltd, wanted to increase the height of the visual and acoustic bund, thereby shielding the neighbours from the visual impact.

Working with local stakeholders and councils, it was determined that a 16m high bund was needed. Furthermore, it was to be constructed wherever possible using site-won fills, created through other works on the Gatwick campus. To maximize the space for development, it was decided that a soil-reinforce bund would be required, with a 63' face on the airport side, and a gentle grassy slope on the outer face of the bund.

Solution

Consulting engineers Scott Wilson and Maccaferri worked with main contractor Carillion plc, specialist soil reinforcement installer PML Geotech and fill supplier P.J.Brown, to optimise the complex relationship between:

- Geometry of the bund
- Available fill types
- Cost-efficient use of geogrid reinforcement
- Design & construction of the bund

It was initially considered to use the site-won Class 7C1 clay material as structural fill throughout the bund. However, finite element analysis revealed that pore water pressures would build up within the bund during construction. This could have potentially led to an unstable situation in the short term before pore water pressures had the chance to dissipate. Therefore, in the tallest sections of the bund where this problem was greatest, recycled granular material was used in the lower layers of the bund.

Client: BAA Airports Ltd

Designer / Consultant: Scott Wilson

Contractor: Carillion

Products used (Qty.)

Date of construction: 06/2009 - 09/2009

[Google Maps](#)

[Google Earth](#)



Lower courses of acoustic bund



Section showing Biomac C, Paragrid and face formwork



Recycled granular fill was used at the base of the bund



Wrapping Paragrid geogrid back to form face of bund



Hydroseeding the bund during construction



The bund nearing full-height