



TRENCHERS FOOTBRIDGE | SLOUGH



The London Crossrail east-west rail network creation is one of the biggest infrastructure projects in Europe presently and certainly the most complex in the recent history of the UK rail industry.

When completed in 2018 Crossrail will increase London's rail-based transport network by 10%. The route will pass through 37 stations and run 118 km (73 miles) from Maidenhead and Heathrow in the west, through new twin-bore 21kms (13miles) tunnels below Central London to Shenfield and Abbey Wood in the east.

With new construction and significant alterations needed to existing stations, rail-track and bridges, the Crossrail project is a significant test of modern infrastructure work and materials. Leca® LWA is playing a part in this giant construction programme.

FACTS

Amount of material: 60m³ of [LECA ®LWA \(10-20mm\)](#)

Interesting Fact: With new construction and significant alterations needed to existing stations, rail-track and bridges, the Crossrail project is a significant test of modern infrastructure work and materials.

Main Contractor: HYDER Consulting

In the Slough area alone it was necessary to remove and replace four bridges to accommodate the new lines and maintain vehicular and pedestrian crossing access. The Trenchers Footbridge replacement required significant alterations to the original earth embankments to raise the height of the walkway and accept the increased span.



Robert Corney, Technical Director Rail and Civil Structures at Hyder Consulting, explains: “We had to create a 2.5m high by 4m wide core embankment on top of an existing embankment which had step sides and was in close proximity to adjacent properties. We therefore required vertical sides of a retaining wall to form

the higher level onto the embankment, and wanted to keep the additional surcharge as low as possible to prevent overloading the existing embankment. We therefore developed a solution using a modular block retaining wall which was easy to handle and construct considering the access constraints and used in conjunction with the Leca® LWA fill.”

A totally natural product, Leca® LWA is formed by heating and firing natural glacial clay in a rotary kiln at temperatures up to 1150°C. This process transforms the clay into lightweight ceramic granules with a hard shell and porous core. With a bulk density of just 0.3 tonnes per cubic metre, Leca® LWA has excellent insulation properties, is free draining, fire resistant, frost resistant and chemically inert with no hazardous properties. Used as a lightweight aggregate fill in many civil engineering and construction applications Leca® LWA reduces the weight on weak substrates and against retaining structures by up to 75% over traditional fill and eliminates expensive settlement delays, is easily handled and quickly installed.

Section Engineer Scott Exell of main contractor Hochtief is pleased with the material’s performance; “Leca® LWA proved easy to handle and we used it here in conjunction with Anderton Concrete’s block and geogrid system.

The Leca® LWA was delivered to site and we moved it into position with tracked dumpers which provided the main compaction. We added whacker plate compaction to the smaller areas. This was a high build situation and the Leca® LWA quickly provided a light, stable fill which we know also has excellent drainage qualities.”