

London Borough of Barking & Dagenham Council Homes Phases 1 and 3a



Client:	London Borough of Barking & Dagenham
Contract type:	Low Environmental Impact Estate Road Construction
Groundworker:	Dwyer Engineering Services Ltd
Material supplier:	OCL Regeneration Ltd

Description

The conventional construction of new roads utilises a hot mix of bituminous macadam or asphalt laid in three layers: a base course, a binder course and a surfacing course.

The manufacture of conventional road surfacing materials use a considerable amount of energy to heat the aggregate and also to maintain the bitumen throughout its storage, prior to use in the manufacture of the product.

Opportunity

In order to demonstrate a commitment to the use of sustainable materials and to minimise the impact on the global environment, United House investigated the use of alternative materials which have a lower embodied carbon whilst not compromising the performance and longevity of the product.

Thus, it was proposed to trial the use of OCL Regeneration’s Foambase™ as a replacement for conventional hot mix and binder course for the new roads constructed on Phase 1 of the new housing being constructed for London Borough of Barking

& Dagenham. This product has been used subsequently in the construction of the roads on Phase 3a.

Product Comparison

Conventional Asphalt/Macadam

This comprises graded aggregate up to 30% recycled and a bitumen binder. The aggregate is dried and heated to approximately 160°C and mixed with the bitumen which is stored at a similar temperature. This process uses a considerable amount of energy to dry and heat the aggregate and also to maintain throughout.

OCL Foambase™

This is manufactured from crushed and screened road surfacing material

(i.e. asphalt and macadam with a maximum recycled content of 94%), and bitumen and cement. The mixing process is carried out cold, the only hot material used is the bitumen.

Additional Benefits

In addition, further energy savings are achieved as the material can be laid by hand without the need for a paver machine. Also, because the material is cold, it eliminates the risk of burns associated with conventional hot mix asphalt.

Cost Reduction

The new material is approximately £15/tonne cheaper. In this instance, approximately £2700 was saved.

	Energy Required to Produce 1 tonne	CO ₂ Emissions to Produce 1 tonne
Conventional Hot Mix road base and base course	6.1 kWh/tonne	55 kg CO ₂ /tonne
OCL Regeneration Foambase™	1.22 kWh/tonne	37 kg CO ₂ /tonne
Saving/Tonne	4.88 kWh/tonne	18 kg CO ₂ /tonne
Total Saving	880 kWh	3240 kg CO ₂

Based on figures provided by OCL Regeneration