

Lafarge Aggregates

Principal runway gets first class treatment

Edinburgh Airport's main runway has been successfully resurfaced with no disruption to flights and through careful planning, effective procedures and a lot of hard work.

Resurfacing a main runway is a large scale project that comes around to a major airport only every 10 to 15 years. With a natural succession or migration of airport staff, it is understandable that operators can be unsure of what lies ahead when contemplating runway reconstruction. Lafarge, however, has recently demonstrated again that it has the necessary expertise to successfully deliver a new runway surface at a major UK airport.

Lafarge has experience of working on the UK's busiest runways going back over 25 years and in 2008 resurfaced the main runway of Edinburgh Airport for Morgan Est, main contractor for BAA Edinburgh. Resurfacing was carried out during nightly runway possession periods between scheduled flights, so the planning and

observing of correct procedures were key to success, which is what Lafarge can rightly claim. No lost time incidents or environmental accidents were recorded and not a single runway possession period over ran its scheduled duration.

"We completed the project on time, with an excellent safety record and no late hand backs of the runway."

Brian Cody

"It took plenty of hard work and attention to ensuring high quality and safety were maintained on site, as well as a necessary focus on getting the asphalt mix right, but the

project resulted in no disruption to flights," says Lafarge's Airfields Project Manager Brian Cody.

"Technical aspects of such work are important, but so is a client's confidence in our ability to deliver the works. At every airport we go to, the operator's staff are understandably very concerned about what we are going to do, because rarely have they seen a major runway resurfaced before. Operators are often sceptical about whether we can get the work done on time."

Lafarge's resurfacing work was carried out between April and October 2008 as part of a larger runway refurbishment project including installation of new services and ground lighting managed by BAA Edinburgh's main contractor Morgan Est. The scope of Lafarge's work covered removing and renewing the asphalt surface and like for like replacement of the runway's transverse and longitudinal profile.

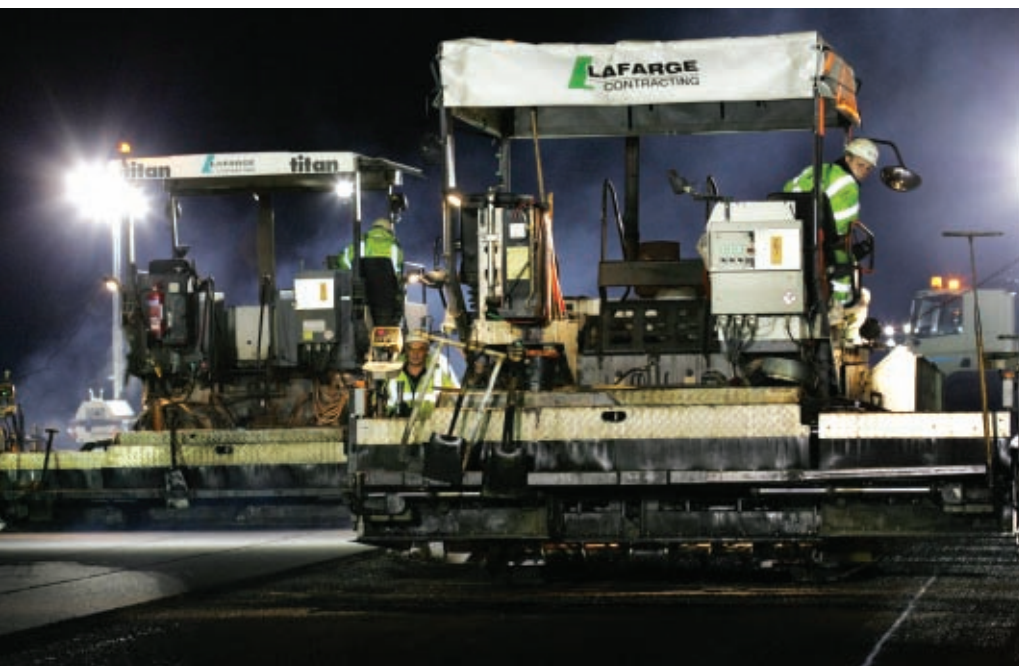
The main runway at Edinburgh has a 2720m long operational length and is 60m wide including its shoulders. The surface was grooved Marshall Asphalt, which had reached the stage where it needed replacing. Phased resurfacing work was planned to take place during night time runway possessions starting at 23.00 and finishing at 06.00, from Sunday night through to Friday morning each week.

Around 27,000t of Marshall Asphalt would be laid on 126,000m² of runway and 40,000m² of shoulders, in total requiring 110 nightly possessions of the runway for surfacing operations.

"Typically, shifts started at 18.00 each

Planning and preparations were key at Edinburgh. Lafarge moved onto the runway with back ups for every item of plant on site

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Lafarge planed out the existing runway surface to match the quantity of new asphalt available – typically moving 60m down the runway each night

evening with a decision making process with BAA and Morgan Est, using detailed weather forecasts to decide whether we would go ahead with that night’s work,” says Cody. “If the weather was favourable, asphalt mixing would commence at 20.00 and surfacing crews would be mustered for 21.30, for a full briefing on that night’s work. Preparations were key to ensuring the runway would be handed back on time each morning.”

Briefings included direction on quantities and areas of asphalt to be planed and laid that night and anything that would affect the work. “Safety considerations were paramount,” Cody says.

Only the airport’s duty operations manager has the authority to lead surfacing crews out

onto the runway and to give the all clear for flight operations to restart the following morning. Weather permitting and once given the signal to move, Lafarge’s team (of 48 operatives and staff at peak production) moved out onto the runway with plant including two pavers, five rollers, three sweepers and a back up for every item of plant on site.

“We normally started planing at 11.30 and planed out existing surface material until the volume taken out equalled the quantity of new asphalt mixed and available,” Cody says. “We then commenced laying, usually around 01.00 and continued until 04.30 which left more than sufficient time for the newly laid asphalt to reduce in temperature

for operational use at 06.00.” Careful clean up and hand back procedures were followed at the end of every shift with visual and physical sweeps of the runway managed by Morgan Est.

A typical night’s work took Lafarge 60m down Edinburgh’s runway and all the way across its 45m wide main strip. The 7.5m shoulders were resurfaced separately during subsequent possessions, as is conventional, says Cody, due to the quantity of services in these areas. Each new section of surface course was grooved three nights after it was laid, by others working for Morgan Est.

“There was an enormous amount of work under way on the runway during any given night, coordinated by Morgan Est with BAA, but we were probably the most visible or conspicuous operation to the BAA’s staff who were often out looking at what was going on. We completed the project on time, with an excellent safety record and no late hand backs of the runway,” says Cody. “Gaining BAA’s trust has been key and has been achieved by previously demonstrating we can do this type of work. Lafarge is a very well known name in civilian and military airfields and we’ve worked for BAA for a long time now.”

GETTING THE MIX RIGHT FOR ALL REQUIREMENTS

The surfacing material laid at Edinburgh is similar to others of the generic Marshall Asphalt type, but was still designed in detail to achieve specific and desired properties.

A standard Marshall Asphalt is an ‘asphaltic concrete’ designed specifically for withstanding very high point load and shear forces from landing aircraft. According to Lafarge’s Airfields Project Manager Brian Cody, Marshall Asphalt is

also hard wearing and resistant to fuel spillage and jet blast.

However, there are variable levels of performance to be set and tested for, such as strength and friction.

“Our mix was designed to meet all requirements and in the knowledge that we would need to meet a necessary friction value,” Cody says. “The key to this was a lot of mix development work by our team back at our Shawell laboratory in Leicestershire.”

email: info@modernasphalts.com

www.lafarge-aggregates.co.uk