

CASE STUDY

ALDERNEY AIRPORT, GUERNSEY, UK



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Alderney Airport is operated by the States of Guernsey. The runway was heavily oxidised and routine FOD sweeps were collecting on average over 400kg each month. The States of Guernsey sought a detailed solution for redeveloping Alderney's runway. Treatment with RHINOPHALT would provide a major improvement in the surface quality of Alderney Airport's runway, aprons and taxiway for aircraft.

AIRFIELD PRESERVATION

The Challenge

Built in 1935, Alderney Airport was the first airport in the Channel Islands (UK). The main runway, 08/26 is 880 m (2,887 ft) long and is asphalt. The two secondary runways are both grass. Runway 08/26 asphalt surface is approximately 18 - 20 years old and heavily oxidised. Some large areas have been resurfaced over the last few years. Routine FOD sweeps were collecting on average >300 kg each month since 2013, with a noticeable increase during the winter months. The States of Guernsey wanted a solution that would seal the surface and prevent further aggregate loss until full rehabilitation could take place.

The Solution

An application rate of 0.45 litre/m² was recommended for all surfaces. This was determined by spraying 1m² panels at various application rates on the different asphalt surfaces.

The contract was to preserve 28,000m² of asphalt surface with RHINOPHALT comprising:

- Runway and turn pads - 19,000m²
- Bravo taxiway - 3,000m²
- Apron - 6,000m²

Application was carried out using a large combi-truck that was able to apply fine Rhino-Dust at a calibrated rate in conjunction with the RHINOPHALT. The fine Rhino-Dust enables immediate friction recovery on the treated surfaces. A line laser was also used for applying RHINOPHALT in smaller areas, and for finishing and edging.

Following on-site truck calibration, a 100m section was applied for reference friction testing.

Using a Findlay Irvine MK2 Grip Tester the 100m section was recorded at 0.93, compared to pre-application grip level of 0.83 being carried out much more efficiently overnight between 23.00 and 05.30.

This project will result in a major improvement in the surface quality of Alderney Airport's runways, aprons, and taxiway for aircraft and it represents a significant investment in the island's transport infrastructure. All of the existing paint markings have been enhanced, new markings have also been added to help visual references for pilots, and some historic non-conformance with current standards have also been dealt with. The runway surfaces have been grip-tested each day to ensure continued safe operations and the results show no significant change in friction levels compared to results taken before the work commenced. All of the works took place at night after the airport closed and this has enabled us maintain services during the day.

Colin Le Ray

General Manager of Ports, States of Guernsey

FAST PROCESS MINIMISES DISRUPTION

Contract

Application commenced in September 2018 and was programmed for 5 night shifts.

EXTENDED PAVEMENT LIFE OF 3-5 YEARS

FOD Reduction

Any loose aggregate particles pose a significant FOD risk to aircraft. The treated asphalt surface will become more resistant to abrasion,

Bad weather caused delays, and full credit goes to the contractor as the job was completed in 3 shifts and still met the 28,000m2 contract deadlines.

All lines, piano keys and landing markers were re-instated within the same shifts once the RHINOPHALT had cured.

Friction recovery

A fresh application of RHINOPHALT covers the aggregate micro-texture, effectively reducing the current grip value of the pavement surface, similar to a freshly laid asphalt surface course.

Fine Rhino-Dust is applied at the same time as the RHINOPHALT maintains grip, and helps to abrade the RHINOPHALT from the aggregate surface under trafficking. Once the aggregate micro-texture is exposed, the grip values are returned to preapplication levels.

A friction run was completed two days after treatment on 18 September 2018, and the results can be compared favourably to the preapplication run taken on 2 August 2018.

- 02 August 2018: 0.83
- 18 September 2018: 0.94

Both results are well in excess of the airfield MPL of 0.55.

stone loss, water ingress and the severe ageing effects of extreme temperatures.

One application of RHINOPHALT on older asphalt surfaces can extend pavement life by an additional 3 to 5 years, delaying the massive cost and disruption of a resurfacing intervention.

In 2018, the average monthly FOD mass collected was 414kg. Following treatment in September, the FOD mass reduced to an average of just 30kg.

CUSTOMER SATISFACTION

The client has reduced the FOD sweeps to just one per month due to the effectiveness of the RHINOPHALT treatment.

Substantial financial benefits are achieved through improved asset management because RHINOPHALT:

- Adds years to the life of asphalt, delaying expensive cost of replacement
- Reduces unplanned maintenance intervention
- Minimises the FOD sweeping costs associated with aggregate loss
- Maximises airfield availability

This delays the need for major resurfacing operations and reduces whole life cost.