

ENGINEERING POLICY 94-03

SUBJECT: Sub Drain Systems Design for Pavements.

PURPOSE: Present guidance in the design of pavement structures for airports.

DISCUSSION: Most airport pavements and overlays are being designed without a sub drain system. We have a standard design for sub drains in AC 150/5320-5B "Airport Drainage" and encourage their use.

In the past few years we have become involved in contract claims and change orders as a result of unsuitable sub grades and weak foundations for overlays. The majority of these would have not occurred if a proper sub drain system had been designed and installed. Other benefits of the sub drain system are the extended life of the pavement structure. This is not immediately apparent but justifies the additional cost for the drain system. Some designs result in a bathtub effect where runoff water cannot escape laterally and ponds in bases or cracks in the pavements. Drains minimize the potential of weak sub grades from excessive moisture, stripping of asphalt from excessive water, and pumping of sub grades or sub base courses.

The cost to install drains under existing structures can be minimized with the application of Engineering Brief 42, "Geocomposite Pavement Edge Drains". These have been successfully used, provided that the base courses are intercepted. Areas with low rainfall can also benefit from a sub drain system if they experience snow melt or have a perched ground water table.

POLICY: All airport pavement project design reports should include a discussion on sub drain systems. Adequate justification should be included if sub drains are not used.

REFERENCES: AC 150/5320-5B "Airport Drainage", AC 150/5320-6D "Airport Pavement Design and Evaluation", and Engineering Brief 42, "Geocomposite Pavement Edge Drains"

APPROVAL: /s/

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