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Some Technical Solutions for the Use of Aerodrome Pavements in the Soft Soil Conditions

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Abstract

Reconstruction model of aerodrome pavement with the use of new design of precast concrete prestressed slab is proposed. Numerical study of stress–strain state of strip pavement was performed. The aim of the article is studying stress–strain state of the proposed design of precast concrete aerodrome pavement when interacting with soft soil conditions. The design of the jump joint, which maintains jointless connection of pavement, is offered. To study stress–strain state of aerodrome pavement constructed from precast concrete prestressed slabs, numerical technique is used in the article. In furtherance of numerical technique, it was defined the equivalent cross-section unit of the three-layer thin slab construction. The scheme with one plane of symmetry for discrete model fragment of flight strip prestressed cover slabs was constructed. Based on the results of numerical calculations, nodal displacements plot, driving bending moments and nodal reactions of soil base are made. It is established that conditions of aerodrome pavement structure strength and deformability are satisfied. Practical importance of the work is that, with sufficient feasibility study, a significant reduction in material capacity of coating structure can be achieved with the necessary durability and reliability, even for heavy-duty oversized aircraft.

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