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Compressibility and seepage properties of peats.

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The compressibility of some fine and coarse fibrous peats was studied in the laboratory using the oedometer apparatus. Load tests were also conducted on pairs of identical test specimens prepared such that the axis of one specimen was orthogonal to, and the axis of the second specimen parallel to the cross-anisotropic fabric in order to assess the level of compressibility-anisotropy due to the preferential horizontal orientation of the constituent organic solids. The laboratory-measured values for the compression index (C_c), which is used to estimate the amounts of field settlement, were compared with the C_c values predicted using existing empirical correlations. Terzaghi and Peck’s (1967) correlation gave values in close agreement with the laboratory-measured values.

An overview of a new laboratory apparatus that is currently being developed to study the reduction in the permeability of peat deposits due to surface loading, such as an embankment, is also presented. The permeability under horizontal and vertical seepage conditions are independently measured on undisturbed block samples of peat which are compressed one-dimensionally by applying increment vertical loads.

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