

Influence of particle size for Malaysia peat to the cyclic triaxial loading parameters

ABSTRACT

Peat is a partially decomposed soil with volumes of plant structures with high moisture content. The morphology of peat combines the definition of the structural arrangement of soil particles that are associated with its element mainly fibres, moistures and pore structures. The understanding of peat's performance including its particle size is essential to understand but difficult to interpret. Laboratory-based research by the cyclic triaxial test was implemented to determine the cyclic loading parameters (cyclic shear modulus, G and damping ratio, D) using samples sized 50mm by 100mm height from three different locations. The samples were performed under different effective stresses (25kPa, 50kPa, 100kPa) and frequencies (0.1Hz, 1Hz, 3Hz). Wet analysis from the particle size distribution test was used to evaluate and analyse the relationships between the cyclic loading parameters and peat's particle size effects. As a result, the particle sizes of Malaysian peat samples were significantly related to the performance of G and D behaviour in the cyclic loading test. Through this analysis, an understanding of the variability of particle sizes for Malaysian peat was contributed originally from the degree of decomposition itself that can alter the behaviour of cyclic loading parameters in an advanced test.