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Determination of Dynamic Soil Properties Using Multichannel Analysis of Surface Wave (MASW) Techniques in Earth-Filled Dam

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Abstract : This study was conducted to investigate the engineering parameters: compressional wave: Vp, shear wave: Vs, and density: ρ related to the dynamically geotechnical properties of soils compaction in the core of earth-filled dam located in northern part of Thailand by using multichannel analysis of surface wave (MASW) techniques. The Vp, Vs, and ρ from MASW were 1,624 - 1,649 m/s, 301-323 m/s, and 1,829 kg/m3, respectively. Those parameters were calculated to Poison's ratio: ν (0.48), shear modulus: G (1.66 x 108 - 1.92 x 108 kg/m2), Vp/Vs ratio (5.10 – 5.39) and Standard Penetration Test (SPT) showing the dynamic characteristics of soil deformation and stress resulting from dynamic loads. The results of this study will be useful in primary evaluating the current condition and foundation of the dam and can be compared to the data from the laboratory in the future.

Keywords : earth-filled dam, MASW, dynamic elastic constant, shear wave
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