design. The major sources of uncertainty are: shear strength of the soil, wave loads, pore pressure generation under repeated loads, and methods of analysis. The results show that the conservative assumptions and low safety factor, based on the information available at the time of design, lead to a reliability that is close to those reported for other offshore foundations in the North Sea. About the same reliability is obtained by an estimate made on the basis of current knowledge. This study demonstrates the use of reliability analysis in designs involving complex loadings and inadequate knowledge on soil behaviour. Auth.

851239
Behaviour of laterally loaded piles embedded in a heterogeneous half-space (In Italian)
Dente, G; Gulla, G
Riv Ital Geotec V17, N4, Oct-Dec 1983, P194-213

A series of parametric solutions are presented to analyse the working load response of a single pile laterally loaded and embedded in an elastic mass, whose Young's modulus increases linearly with depth (Gibson soil). The inhomogeneity of the soil influences the results, resulting in higher bending moments and very different values of displacements than those predicted for homogeneous soil. Relative deformability of soil-pile is the most influential factor. The methods to determine the required soil parameters are briefly examined. Data on soil modulus are also presented. The influence of the loading scheme is analysed with reference to the common test of interposing the jack between two identical piles. This, however, causes a smaller displacement than that of a single pile.

851240
Analysis of machine foundations: state of the art
Gazetas, G
Soil Dynam Earthq Engng V2, N1, Jan 1983, P2-42

Reviews the state-of-the-art of analysing the dynamic response of foundations subjected to machine-type loadings. Formulae and graphs for both the static and dynamic parts of impedances for surface and embedded foundations are presented. Circular, stiff, rectangular and arbitrary shape of foundation are considered for 3 types of soil profile: the half space, the stratum over bedrock, and the layer over half space. 128 refs.

851241
Vibration of hammer foundations
Novak, M; El Hifnawy, L
Soil Dynam Earthq Engng V2, N1, Jan 1983, P43-53

Two methods of analysis which incorporate damping when predicting the vibration behaviour of hammer foundations are presented. The first method for hand calculations is based on energy considerations; the second method suitable for computer analysis uses the complex eigenvalue problem.

851242
Foundations for auto shredders
Richart, F E; Woods, R D
Soil Dynam Earthq Engng V2, N1, Jan 1983, P54-59

Three different foundation constructions have been adopted at 3 different sites for auto shredders: a mat foundation, a block foundation, and a pile-supported foundation. The dynamic response of each system is analysed. Vibration measurements made on the pile-supported foundation after construction permit comparison of prototype motions with design predictions.

851243
Approximations for the low frequency response of a rigid plate embedded in an infinite space
Selvadurai, A P S
Soil Dynam Earthq Engng V2, N2, April 1983, P78-82

An approximate solution for the low frequency dynamic behaviour of a rigid rectangular disc embedded in an elastic infinite space is developed. The solution is based on a matched asymptotic expansive solution valid for low frequency responses of the embedded foundation and a set of bounds for the static load-displacement response of an embedded rigid rectangular foundation.

851244
Numerical integration method for seabed response to water waves
Yamamoto, T
Soil Dynam Earthq Engng V2, N2, April 1983, P92-100

Numerical integration of displacement stress vectors is used to analyse seabed response to water waves; this method does not produce unrealistic stress discontinuities associated with the commonly used method of multi-layer approximations. The method is verified by results from water tank experiments on motions and wave damping in clay beds. Calculations for the motions of the Mississippi Delta clay bed give much smaller displacements than those from quasi-static analyses using multi-layer approximations. A criterion for choosing between total stress (single phase) and effective stress (multi-phase) analysis is also proposed.

851245
Two-dimensional analysis of the effect of fault rupture on buildings with shallow foundations
Berrill, J B
Soil Dynam Earthq Engng V2, N3, July 1983, P156-160

The behaviour of a building founded on a soil layer overlying a strike-slip fault in basement rock is studied to determine the conditions under which rupture will be diverted around the structure. The problem is made 2-dimensional by assuming the structure is long with its long axis aligned with the fault. Results indicate that rupture will be diverted around the structure provided bearing stresses are sufficiently large and the soil layer is not excessively shallow. Model tests verify these findings.

851246
Excess pore water pressure due to undrained strip loading on a cross-anisotropic elastic soil deposit. Technical note
Murakami, Y
Soils Found V24, N2, June 1984, P95-100

The characteristics of the excess pore water pressure developed in a saturated cross-anisotropic elastic clay soil deposit immediately after the application of a load are analysed. From numerical results, the excess pore water pressure is found to be affected by the anisotropy of Young's modulus of the soil skeleton.

Slopes

See also: 851263, 851325

851247
Pit stability monitoring at Premier Mine
Molyneux, R G
Assoc Mine Mangr S Afr, Circ N1/83, 24 May 1983, 14P

Mining operations at the Premier Mine, South Africa, have created a large open pit with unusually steep sidewalls. Instability has increased and extensive failures have occurred. After the first major failure in 1962 a systematic monitoring system