

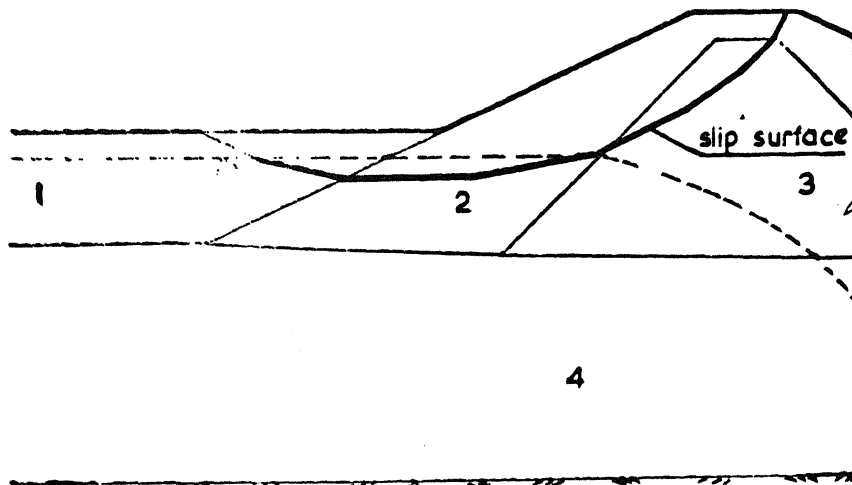
STABILITY ANALYSIS OF EARTH DAMS AND EMBANKMENTS
DURING STRONG EARTHQUAKES

by
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ABSTRACT

It is known that excess pore pressures generated by an earthquake plays an important part in the stability of an earth dam. In the limit equilibrium method of stability analysis of an earth dam and embankment, it is possible to take this excess pore water pressure into account. The method proposed in this paper deals with effective stresses and the pore pressures are characterised by pore pressure parameters A and B, which are to be obtained at failure. Solution of the problem is obtained in the form of author's critical acceleration K_c . The advantage of this method of solution over other methods of solution dealing with total stresses is that it determines the critical acceleration which is the acceleration that is required to bring the stresses on the failure surface to a state of limiting equilibrium and not the factor of safety. Therefore the solution can be used directly to determine the possible displacements when the applied acceleration is bigger than the critical for that surface. Example of the solution is provided, in the form of figures.

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zone		$\tan \phi$	C_{psf}	$\gamma_{1, pcf}$	$\gamma_{2, pcf}$	A_1	A_5	A_{10}	A_{20}
1	DEBRIS	0.882	0	107	130	0.3	1.0	1.9	2.2
2	SHELL	0.895	0	133	147	0.2	0.9	1.7	2.0
3	CORE	0.520	560	107	139	0.6	2.0	2.2	2.5
4	FOUND.	0.795	224	127	142				

Section of a Dam

fig 3

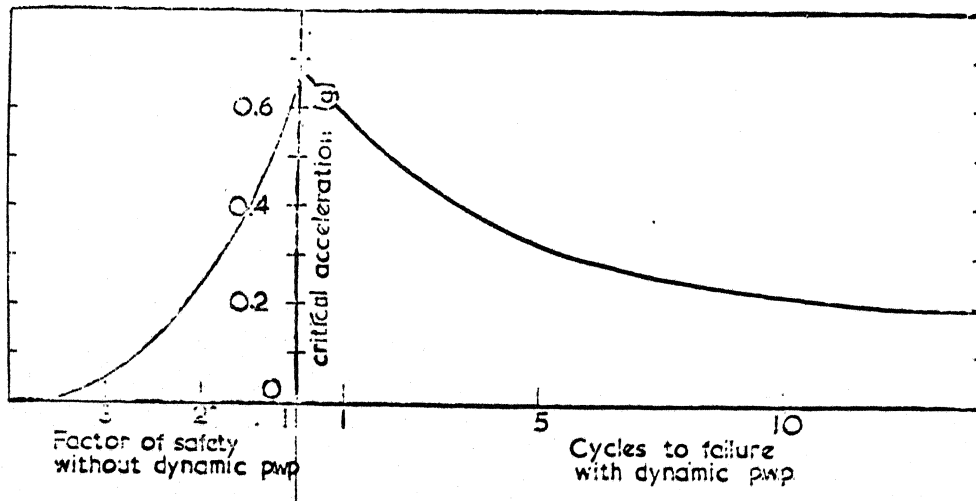


fig 4