World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Analytical Formulae for Parameters Involved in Side Slopes of Embankments Stability

Authors : Abdulrahman Abdulrahman, Abir Abdulrahman

Abstract : The stability of slopes of earthen embankments is usually examined by Swedish slip circle method or the slices method. The factor of safety against sliding using Fellenius procedure depends upon the angle formed by the arc of sliding at the center ψ and the radius of the slip circle r. The values of both mentioned parameters ψ and r aren't precisely predicted because they are measured from the drawing. In this paper, analytical formulae were derived for finding the exact values of both ψ and r. Also this paper presents the different conditions of intersections the slip circle with the body of an earthen dam and the coordinate of intersection points. Numerical examples are chosen for demonstration the proposed solution

Keywords : earthen dams stability,, earthen embankments stability, , Fellenius method, hydraulic structures, , side slopes stability, , slices method, Swedish slip circle
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020