World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:10, No:10, 2016

Design of Raw Water Reservoir on Sandy Soil

Authors : Venkata Ramana Pamu

Abstract : This paper is a case study of a 5310 ML capacity Raw Water Reservoir (RWR), situated in Indian state Rajasthan, which is a part of Rajasthan Rural Water Supply & Fluorosis Mitigation Project. This RWR embankment was constructed by locally available material on natural ground profile. Height of the embankment was varying from 2m to 10m.This is due to existing ground level was varying. Reservoir depth 9m including 1.5m free board and 1V:3H slopes were provided both upstream and downstream side. Proper soil investigation, tests were done and it was confirmed that the existing soil is sandy silt. The existing excavated earth was used as filling material for embankment construction, due to this controlling seepage from upstream to downstream be a challenging task. Slope stability and Seismic analysis of the embankment done by Conventional method for both full reservoir condition and rapid drawdown. Horizontal filter at toe level was provided along with upstream side PCC (Plain Cement Concrete) block and HDPE (High Density poly ethylene) lining as a remedy to control seepage. HDPE lining was also provided at storage area of the reservoir bed level. Mulching was done for downstream side slope protection.

Keywords : raw water reservoir, seepage, seismic analysis, slope stability
Conference Title : ICWRGE 2016 : International Conference on Water Resources and Geotechnical Engineering
Conference Location : Seoul, Korea, South
Conference Dates : October 06-07, 2016

Open Science Index, Environmental and Ecological Engineering Vol:10, No:10, 2016 publications.waset.org/abstracts/51993/pdf