

Experimental Study of Reservoir Siltation as CLSM for Backfill

Applications

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Abstract

Over the past decade, most of the reservoirs in Taiwan have been experiencing serious siltation problems. Therefore, the removal of reservoir siltation (RS) and the resource recovery of dredged material have become critical issues for national security and economical development. Controlled low strength material (CLSM) mixed with non-standard recycled material can be used as an excellent alternative for backfill construction. This research conducts an experimental study to explore the possibility of using RS in CLSM for backfill applications. Test results showed that RS can be used for producing of acceptable CLSM through proper mix design procedures. Considering the requirements of backfill applications, this study recommends a water/solid ratio of 0.8~0.9 and a cement/water ratio of 0.4~0.5 can be used for the design. The results show a promising solution to reuse reservoir siltation, save natural resource of granular fill, and ensure the quality of backfill constructions in most cases.

Keyword : reservoir siltation, CLSM, backfill