Study on Construction Technology for Crack Treatment of High Sandy Slate Slopes in Jiaohua Reservoir (Postprint)

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Abstract

This paper investigates the cracking issues that emerged during the excavation of the high sandy slate slope at the right dam abutment of the Jiaohua Reservoir. The study elaborates in detail on the crack development characteristics of the reservoir slope, the treatment construction layout, and the specific construction techniques for rock bolts and prestressed anchor cables, encompassing key procedures such as drilling, grouting, and tensioning. Quality inspection results indicate that both the pullout resistance of rock bolts and the stress loss of anchor cables meet the design requirements. Furthermore, the research summarizes critical construction essentials, such as the requirement for the anchorage section to be embedded into weakly unloaded stable rock mass and measures for anchor cable angle deflection, thereby providing technical reference for the treatment of similar cracking problems in high sandy slate slopes.

Full Text

Preamble

Research on Construction Technology for Crack Treatment in High Sandy Slate Slopes at Jiaohua Reservoir

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Abstract

This paper investigates the cracking problems that emerged in the high sandy slate slope at the right dam abutment of Jiaohua Reservoir during excavation.

It provides a detailed account of crack development in the slope, the construction layout for remediation, and the specific construction techniques for rock bolts and prestressed anchor cables, encompassing key processes such as drilling, grouting, and tensioning. Quality inspection results demonstrate that both the pullout resistance of rock bolts and the stress loss of anchor cables satisfy design requirements. The study also identifies critical construction considerations, including the requirement that anchoring sections be embedded in weakly unloaded stable rock mass and measures for anchor cable angle deflection, thereby offering technical guidance for similar crack treatment projects in high sandy slate slopes.

Keywords: rainy season; slope excavation; rock mass cracks in slope; prestressed anchor cables

Note: Figure translations are in progress. See original paper for figures.