

1. Differential Measurement System for Invert Excavation Control

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In conventional management of inverted excavation in mountain tunnel construction, excavation work was frequently interrupted to verify deviations from the reference line at multiple cross-sections and several points within each section. This approach limited measurement locations, necessitated interruptions in work, and required additional measurement personnel. To shorten the measurement time, alleviate workloads among personnel, and enable comprehensive as-built management across the entire area, we developed the Differential Measurement System. This paper presents an overview of the system and discusses the results of its application in inverted excavation in construction management for road tunnels.

Keywords: LiDAR, as-built management, invert excavation, high efficiency