Publication

Highway 1 Rat Creek embankment failure: 2021 reconnaissance and analysis

Principal Consultant Phil Gregory, Senior Technical Expert Reid Fisher, and Senior Technical Specialist Justin Lindeman have coauthored a new Geotechnical Special Publication, *Highway 1 Rat Creek embankment failure: 2021 reconnaissance and analysis.* The ebook explores the causes of a January 2021 roadway collapse in Big Sur, California, when a section of Highway 1 washed out following record-setting rainfall.–

Phil and his coauthors probe the causes of the washout and offer recommendations for safeguarding against similar failures — a key concern for those designing and constructing infrastructure in California and elsewhere, as hazards like wildfires and extreme storms are expected to increase with climate change.–

Mobilized by the Geo-Institute Embankments, Dams, and Slopes Technical Committee, the authors headed up a reconnaissance mission after part of the highway collapsed near the town of Esalen, causing a 150-mile detour for drivers. They collected and analyzed aerial, terrestrial, and historical data to pinpoint the causes of the embankment failure. This analysis revealed that, when a large rainstorm lingered over the area in late January 2021, water breached a natural dam in nearby Rat Creek and spilled over Highway 1, eroding the road's embankment and, ultimately, the road itself. A previous year's wildfire likely intensified the creek's overflow by burning off surrounding vegetation, making the area more vulnerable to heavy water- and mudflows and leaving behind debris, such as fallen trees, that made the flow more destructive.–

Phil and his coauthors detail their methods and findings in this publication, offering a case study that sheds light on how similar infrastructure failures happen and how engineers can design and build more resilient infrastructure to withstand future extreme weather and natural disasters.–

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