

## **Arizona Inn Landslide Emergency Response and Drainage Shaft Replacement, Southwest Oregon**

The Arizona Inn Landslide Complex is located between mileposts 311.8 and 312.4 on US Highway 101, between Port Orford and Gold Beach, Oregon. The landslide has experienced persistent movements since the initial road construction in the 1930s. In the late 1990s, a vertical drainage gallery was installed in the landslide as means to reduce groundwater pressures in the lower portion of the landslide mass. The gallery consisted of an approximately 200-foot-deep shaft with arrays of horizontal drains installed at three different elevations. This system successfully reduced pore water pressures and slide movement for over 20 years.

In January 2023, the lower portion of this slide mobilized and moved over 20 feet downslope and to the west in response to weeks of heavy precipitation. This movement completely sheared the shaft at approximately 140 feet below ground surface. Subsequent investigations included reestablishing the groundwater and movement monitoring network. Based on the results of the subsurface investigation and past performance of the drainage system, it was decided that the most appropriate approach was to reestablish the drainage system. The initial phase of reestablishing the drainage system, consisting of approximately 29,000 linear feet of horizontal drains in the upper portion of the landslide, was completed in summer 2023.

The second phase included developing a new vertical drainage system in the lower portion of the landslide to replace the existing system. As part of the investigation phase, a LiDAR scan of the existing shaft was completed, which provided a detailed record of the displacement and loading caused by the landslide movement. Through an alternatives analysis that included the performance of the original shaft and the observed geotechnical conditions, it was decided to relocate the shaft outside of the landslide boundaries. The new shaft will consist of a 20-foot-diameter, 200-foot-deep shaft that will collect discharge from 65,000 linear feet of horizontal drains. The second phase was designed during winter and spring 2024 and construction is scheduled to begin in early 2025.