



BRIDGING THE GAP

Your Connection to Engineering Services

BRIDGE DESIGN RESPONDS TO CALIFORNIA WINTER STORM DAMAGE

Powerful storms hit California from December 2022 and lasted until early 2024 resulting in a State of Emergency for 43 counties including San Diego and Ventura counties. Significant flooding incidents triggered numerous landslides, mudslides, and sink-holes, which in turn resulted in road closures statewide.

Caltrans has first responders including Storm Damage Coordinators, bridge maintenance, and Geotechnical Services. Engineering Geologists performed exploratory drilling and Transportation Engineering Technicians monitored the slope inclinometer. They designed the structure to fix the landslide. Bridge Design becomes part of the emergency response team when the fix involves a structural component, such as a bridge or retaining wall.

Last year's storms generated 33 projects for Bridge Design. One notable project was along Route 84 in San Mateo County. The area was so affected by saturated soils that the hillside continued to move well after the rains stopped. As soon as the site was stabilized construction began. Bridge Design's fix required two retaining walls, one on each side of the highway.

After Geotechnical Services evaluated the stability of the site and identified the best alternatives to open the roadway, they provided subsurface information to Bridge Design. Engineers use this information to calculate the size, spacing, and pile tips of the soldier piles, as well as the location of the ground anchors.



As a result of this collaboration, the best fix determined was a downhill retaining wall that stabilized the slope and retained the roadway embankment. Construction of this wall allowed the road to be re-opened, using one-way reversible traffic, until the second wall could be constructed. This mitigated the most impact to drivers. This partnership ensures an efficient and safe reconstruction and reopening of roads impacted by winter storms while keeping all those involved in the project and the motoring public safe.

