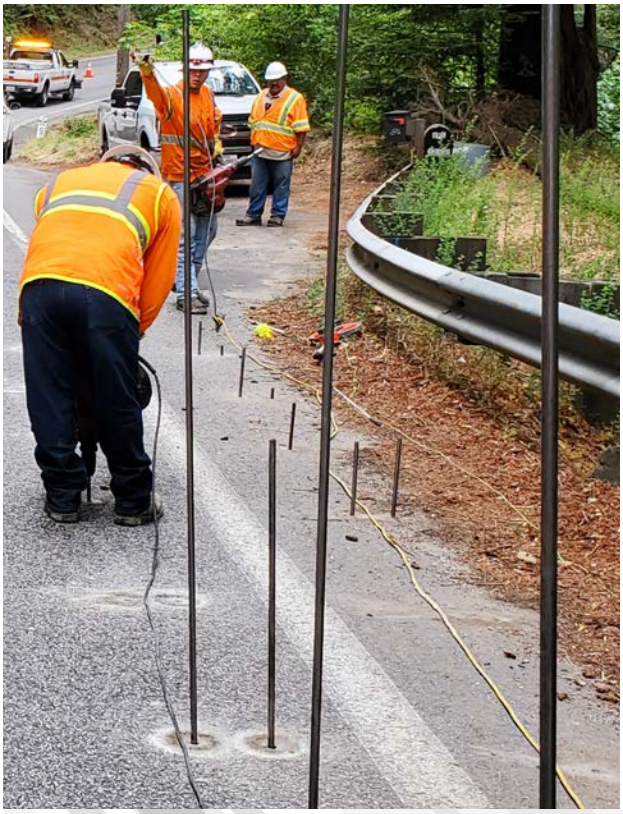
URETEK

Soil Stabilization and Pavement Lifting



Highway Settlement Solution in Boulder Creek, California

Problem

In Boulder Creek, California, Caltrans District 5 officials were dealing with an ongoing settlement issue along a portion of Highway 9. A 12' x 50' portion of the road, located directly over a culvert, had settled 4 inches. The culvert was showing signs of failure and Caltrans believed this may have been a contributing factor with the road settlement. In the past, they had employed asphalt overlay to address the problem but had never been able to stop the settlement. Caltrans was looking for a long-term solution to the settlement problem that would provide a smooth and safe ride for drivers with as little construction impact to the community as possible.

Analysis

URETEK arrived on location to inspect the situation and consult with Caltrans District 5 personnel about a proposed solution. Dynamic Cone Penetrometer (DCP) testing confirmed that the base and sub-base soils had lost compressive strength and could no longer bear the traffic load. URETEK Deep Injection® (UDI) was proposed for the project as a quick and effective way to stabilize the underlying soils while providing a lift to the settled asphalt pavement system.

Solution

For the Highway 9 project in Boulder Creek, UDI was the perfect solution to lift the roadway back to grade and stabilize the soils below. During the repairs, traffic flow was diverted to one lane and delays were effectively minimized for area drivers. Crewmembers injected URETEK 486 Star® polymer into the soils beneath the pavement system according to a site-specific injection plan. Throughout the project, technicians employed laser monitoring to ensure proper controlled lift of the settled roadway.

Result

UDI stabilized the road, increased the compressive strength of the soils below, and restored a safe and comfortable ride for area drivers. All work was completed within two work shifts, and during the project one lane remained open to minimize traffic disruption. After repeated failed attempts to address the roadway settlement issue at the site, Caltrans District 5 officials were pleased to finally have a long-term repair in place without having to deal with the steep costs and long project timelines associated with traditional rip and replace repair methods.

URETEK Deep Injection® (UDI)

Widely referenced throughout our industry, UDI involves the injection of structural polymer into base and subgrade soils to increase the load bearing capacity. This is achieved by injecting the polymer through small holes drilled directly through the pavement structure to depths determined by site-specific analysis. Our URETEK 486 Star® material flows easily into voids and weak zones within the soil mass below. Through a controlled chemical reaction, the expanding polymer compacts surrounding soils and applies a controlled pressure on targeted areas of the affected pavement above. If needed, a multi-injection design plan is utilized to gently return the pavement to its original grade. The composite material quickly cures into a strong, dimensionally stable, and water-resistant geo-material, providing years of reliable service.

URETEK 486 Star®

URETEK 486 Star® polymer is a two-component, high-density, expanding thermoset polyurethane system. It was developed to be the ideal solution for under-sealing, void filling, lifting of settled pavement, stabilization and stiffening of weak soils, and for encapsulating and sealing buried infrastructure. URETEK 486 Star® is environmentally inert, non-toxic, and resists underground water erosion or weakening due to its industry-leading hydrophobic properties.

URETEK utilized laser monitoring to carefully raise the pavement system

Clear pavement settlement was seen at the Boulder Creek job site

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