CASE STUDY
DEEP LOCK®

CVS Pharmacy Soil Stabilization

Developers working on a new CVS Pharmacy in Orlando, Florida, encountered critical soil stability issues during the construction process. The project managers faced a significant challenge when geotechnical testing revealed unsuitable soil conditions between 5 and 10 feet below the surface, posing a threat to the structural integrity of the planned parking lot. This issue was discovered after site preparation had already begun, adding urgency to finding an effective solution that would allow construction to proceed on schedule.

Initial Assessment

A geotechnical analysis revealed that although the upper soil layers had been replaced, a layer of muck remained at depth, posing significant risks of settlement and potential structural failure in the parking lot. The site required comprehensive soil stabilization to proceed with construction. Traditional methods of excavation and replacement were deemed too time-consuming and costly, necessitating an alternative approach.

Proposed Solution

A comprehensive soil stabilization plan utilizing AP Lift 475, a two-component polyurethane foam, was proposed. This solution was chosen for its ability to:

- Consolidate soil throughout the parking lot area.
- Provide a stable foundation for the structure.
- Avoid extensive excavation and soil replacement.

AP Lift 475 was selected for its high strength and excellent expansion properties, which would allow it to effectively fill voids and stabilize the muck layer without adding significant weight to the unstable soil.

Procedures

1. Establish a 5-foot grid pattern across the entire parking lot area.
2. At each grid point, inject 25 pounds of AP Lift 475 at a depth of 10 feet.
3. Inject an additional 25 pounds at a depth of 5 feet at each point.
4. Monitor soil consolidation and adjust injection amounts as needed.
5. Perform post-injection testing to confirm soil stability.

Results

The polyurethane injection solution proved highly effective, successfully stabilizing the soil without the need for extensive excavation. This approach allowed the construction schedule to be maintained, avoiding costly delays that would have been incurred with traditional soil replacement methods. Post-injection testing confirmed that the treated area passed all required stability tests, demonstrating the effectiveness of polyurethane injection for large-scale soil stabilization projects in commercial construction.

Alchatek

About Alchatek

Alchatek is an international leader in the manufacture and supply of chemical grouts and construction products for Geotechnical, Leak Seal, and Seawall Repair applications. Providing solutions from its headquarters in Tucker, Georgia and its manufacturing facility in Reno, Nevada, Alchatek specializes in advanced construction technologies for sealing leaks, stabilizing soils, lifting concrete, and protecting infrastructure and seawall structures. To best serve its customers, Alchatek is organized onto three divisions:

The Leak Seal Division combines a full system offering of polymer chemical grouts and equipment with perhaps the most experienced technical team in the industry. It specializes in preventing water ingress through concrete infrastructure including parking garages, culverts, basements and foundations, and sewer manholes.

The Geotechnical Division offers a complete line of single component products for soil stabilization as well as two component polyurethane foams for concrete lifting, void filling, and stabilization of infrastructure. This includes lifting sunken structures such as warehouse floors, back into place.

Seawall Repair Network® is the only national network of certified contractors in the repair, preservation, and protection of Seawalls waterfront barriers. Its proprietary methods and materials are environmentally friendly and safe for use in all marine environments and provide a non-destructive solution for seawall repair at 80% less than the cost of replacement.

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