



CASE STUDY DEEP LOCK®

Verified Soil Improvement Beneath a Pool Shell

Cracks in a community pool shell were discharging water into the subgrade. The leak stripped fines from the upper three feet of soil, and the shell settled as bearing was lost beneath it. Patching the cracks alone would not have held, because the soil supporting the pool was still failing.

Initial Assessment

Penetrometer testing confirmed the loss. The cone advanced through the upper 2.6 feet without a recorded blow, and resistance stayed in single digits down to 3.6 feet. Below that, the profile firmed into competent sandy clay, reaching refusal at 9.5 feet. The design remedy called for scraping back two feet of subgrade and rebuilding it, a three-week job.



Proposed Solution

The contractor specified AP Lift 475 with the Deep Lock® process. The two-component polyurethane expands into weak soil and compacts it in place. Crews injected through rods driven from the surface, leaving the shell and deck undisturbed.

Procedures

1. Logged baseline penetrometer readings to refusal
2. Laid out a 4-foot injection grid across 10,000 sq. ft. around the pool
3. Drove 900 injection rods and injected AP Lift 475
4. Injected a second level beneath the shell, compacting the soil between
5. Re-tested the profile against baseline

DEPTH CM	FT	BEFORE		AFTER	
		Blows (N)	Cumulative	Blows (N)	Cumulative
10	0.3	0	0	7	7
20	0.7	0	0	8	15
30	1.0	0	0	8	23
40	1.3	0	0	9	32
50	1.6	0	0	10	42
60	2.0	0	0	12	54
70	2.3	0	0	12	66
80	2.6	0	0	16	82
90	3.0	2	2	19	101
1M	3.3	4	6	18	119
110	3.6	3	9	20	139
120	3.9	10	19	27	166
130	4.3	11	30	30	196
140	4.6	16	46	21	217
150	4.9	17	63	19	236
160	5.2	18	81	33	269
170	5.6	18	99	35	304
180	5.9	17	116	24	328
190	6.2	18	134	26	354
2M	6.6	23	157	21	375

Results

- Restored bearing in the eroded upper three feet, where cumulative blow counts rose from 2 to 101
- Increased cumulative resistance 139% through the upper 6.6 feet, with values below that depth unchanged
- Stabilized 10,000 sq ft to a treated depth of 10ft
- Eliminated the two-foot scrape and rebuild
- Completed in two days against the three-week estimate

Tech Support:
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