

# AQUA

YOUR TRUSTED PARTNER IN THE SPA & POOL INDUSTRY

NOVEMBER 2019

REPUTATION MANAGEMENT - 24  
PASSING ON YOUR BUSINESS - 48  
73 GREAT SERVICE TIMESAVERS - 56  
BUILDING THE SHALLOW ZONE - 64  
PSP EXPO PREVIEW - 95

PSP  
EXPO  
ISSUE



# BUILT IN A SAND TRAP

Long Island designer/builder Steve Kenny describes a catastrophic project failure and the lengths required to regain a firm footing

By Steve Kenny



This beautiful oceanside setting came with geological conditions and environmental easements that required an ingeniously creative structural solution.



**E**VERY ONCE IN a while, we see reminders of why the pool industry has a questionable reputation in some quarters. The following story ranks up there with the most severe cases of gross builder incompetence I've ever seen.

The project is located in Montauk, L.I., on a gorgeous property overlooking sand dunes and the Atlantic Ocean. The client was a lovely woman of seemingly unlimited means and one who expected only the best. She's also very kind and patient, personal traits that were unfortunately put to the test.

#### ON A BLUFF

The property, with its stunning views and minimalist architecture, was perfect for a sleek vanishing-edge pool. The general contractor who oversaw the home remodel brought in a local pool builder who claimed they built pools the same way we did but at a lower price.

The price may have been lower, but the quality (or specifically lack thereof) was nowhere near the work our company SRK Modern Pool Solutions does, not by a nautical mile.

We first became aware of the project when the home builder called us in a severe panic. The pool was already built, but he wanted us to come in and install our HydroZone 3 treatment system after the fact.

I went, took a look at the pool and could tell immediately how poorly it was built. It suffered from terribly inadequate circulation and undersized plumbing; the flow rates were off, the filter was undersized, there were surge tanks buried 4 feet underground that were completely inaccessible.

The whole thing was like a case study in how *not* to build a pool, and I initially said I didn't want anything to do with it. A few weeks later, the client got back in touch and begged us to get involved. The water quality was so bad the pool was unusable and the heating system underperforming, among all sorts of other issues. I felt so bad for her that against my better judgement, I told her we would do our best — but it wasn't going to be easy and it wasn't going to be cheap.

The upshot was that we took on a pool that was so fouled up, it was almost surreal to try to work on it, like something from a very bad dream.

#### FROM BAD TO MUCH WORSE

Much to my astonishment, it was actually much worse than I initially thought. The first problem was we couldn't control the chemistry. Right away we knew something was badly awry — probably a severe leak, which meant the auto-fill system was running almost constantly and diluting the water, which in turn flipped the chemistry all over the place.

In fact, the pool was already leaking badly, to the point I suspected there had to be some kind of ground movement. I asked the pool builder if they had a soils report and if there was some kind of foundation under the pool. I was summarily told there was no need for a soils report or a foundation because they "knew the area."

At first all I said was "this concerns me," which was a gross understatement because the pool was built in what amounts to sand. I didn't mention anything to the homeowner at that point because the problems I thought might occur hadn't become obvious yet. But right on cue, just a couple weeks later, the pool started to *move*.

First, the pool started leaking at an even greater rate. Then, we noticed the vanishing edge and perimeter overflow edges were badly out of level. Within just a couple weeks, the deep end of the pool heaved out of the ground by an inch and a half. Then, later, it would sink and push the shallow end out of the ground.



The equipment room located beneath the deep end serves the dual purpose of housing the equipment in a comfortable and accessible space while also serving as the pool's foundation in sandy soil conditions.

You could almost watch the structure move up and down, like it was alive.

Then we started seeing cracking in the weirs, which started to structurally give way, then the fascia stone started cracking and delaminating. It was obvious ground movement was destroying the pool, which is basically what one would expect from a structure that was essentially free-floating in sand.

The builder would come out and try to deal with the cracks by repointing them with caulking and doing various other quick stopgap measures. This went on for about a year. We continued to do our best to service the pool, but it was obvious this would end up a completely doomed installation.

### HALF MEASURES

In the second year, the home builder and the homeowner started begging us to install our system, even though we had been telling them the pool wasn't anywhere near what it needed to be for our system to work properly. Still, they kept pressing us to do something, so for about 100 grand, we did

what we could to retool the pool. We stripped out the filter and all the other equipment and installed a properly-sized sand filter, medium-pressure UV, 7-gram an hour ozone, variable-speed pump and a new control system.

Although it wasn't perfect, the pool did function better after that, but it still leaked and moved all over the place at an accelerated rate.

In other words, everything was still a big ugly wad of half measures. That second year, the movement became even worse and eventually, a huge crack formed down the middle of the pool. We knew the thing was toast.

That's when we started talking with the client about replacing the pool completely. Enough had finally become enough.

### FROM BAD TO BEST OF THE BEST

As I mentioned above, the client wanted the very best in terms of the system and the water quality it would deliver. She was intent on having the ultimate bathing experience using her poo/spa combo for exercise as well as hydrotherapy.

Her specifications were admittedly extreme. She wanted the 25,000-gallon pool to rapidly rise to spa-like temperatures in excess of 90 degrees, which basically meant the pool's circulation system had to operate at therapy pool standards with a two-hour turnover and rapid heat rise.

So that's what we did. The new pool is 18-by-42 feet with an 8-by-8-foot inset attached spa. It has a perimeter overflow Lautner edge detail on three sides and a vanishing edge down the length of the pool on the other. It has a



total volume of about 25,000 gallons with the surge capacity handled in two surge tanks.

The treatment system consists of four separate systems: one for the pool, one for the pool surge, one for the spa and another for the spa surge tank. The pool system has a 50-gram, skid-mounted ozone system with an ETS medium-pressure UV system, and the spa has seven-gram ozone with a medium-pressure ETS UV system, as well.

All have custom-made, high-flow contact tanks and chemical controllers to help control pH with independent CO<sub>2</sub> gas feeds with static mixers for good gas absorption. The pool has two high-efficiency boilers with two heat exchangers, and the spa has one boiler with one heat exchanger.

In all, the pool has a two-hour turnover at 450 gpm overall flow rate.

Like all our pools, the circulation system is robust and designed for efficiency with mostly 4-to-6-inch plumbing and floor returns, which are installed in a recessed “toe-kick” detail that encircles the bottom of the pool. The returns are plumbed on a 4-inch plumbing loop with 1-inch drop lines every 6 feet, all to ensure even distribution and flow throughout the entire vessel. The skimming action is handled by the Lautner and vanishing edges.

### OUT OF THE SAND TRAP

The other part of the happy ending involves the pool structure. We had two basic challenges: First, the soil is essentially sand and uncompacted fill, with competent, load-bearing soil down about 16 feet. That meant we’d need some kind of substructure and a heavy-duty pool shell that would essentially exist freestanding in the constantly shifting soil.

Second, we had to work within a tight area due to environmental setbacks that protect the sensitive sand-dune landscape. The original pool was actually built partially over the setback lines, so on top of everything else the first pool was illegal. In fact, its equipment was set even farther out on the dune. We needed to move the new pool back within the easements, find a new place for the equipment and engineer a foundation capable of supporting the structure in the existing soil conditions.

That set of issues set the stage for a truly ingenious solution: We decided to locate the equipment underneath the deep end of the pool in a large reinforced vault that also serves as a massive footing. It’s a beefy structure that

we started referring to as “the bomb shelter.” It’s 20-by-20 feet in two separate rooms with a 2-foot thick floor slab, 18-inch walls and a 2-foot slab roof that distributes the weight of the pool. The pool itself is equally hefty with 18-inch walls, all needed to exist comfortably in the constantly shifting ground.

In keeping with our standard practice, we over excavated the site and built rock-solid forms. (The original pool had been shot directly against the loose soil, which led to all sorts of issues including inadequate steel coverage.)

It was extremely precise work forming the pool and installing the steel and plumbing due to the tricky Lautner edge, vanishing edge trough and unusual “Moses” trough that separates the pool and the spa.

The equipment room is accessed by a flight of stairs that descends beneath the narrow deck between the pool and the back of the house. With its 7-foot ceilings, ventilation and easy access, the equipment rooms are comfortable and even welcoming.

The pool is finished with black Absolute Granite and dark Pebble Fina polished aggregate, all beautifully lit with LED lights. It’s gorgeous in its striking visual simplicity.

The last time I spoke with the client, she was thrilled to finally have the aquatic experience she envisioned. Although we were happy to help out, I can’t help but think how all that time and money and material needlessly went to waste. ~

---

Questions or comments on this article?  
Please email [editors@aquamagazine.com](mailto:editors@aquamagazine.com)