



(Not) Seeing is Believing

GNSS-based solution sends pond excavation productivity soaring



Naples, Florida-based South Florida Excavation (SFE) is one of region's busiest excavation contractors. The company, already staunch proponents of machine control dozer technology, recently expanded that effort to the excavator side of the operation.

Company

South Florida Excavation
Naples, Florida

Project

Three Oaks Parkway Extension
Bonita Springs, Florida

Topcon Solutions

MC-Max Excavator machine control,
HiPer VR GNSS receiver

Topcon Dealer

Lengemann of Florida
Altoona, Florida

"With a GPS system on ten machines, we've been committed to automation on our dozers and motor graders for more than a dozen years now," said Shannon Donohue, one of SFE's superintendents. "Back then, after landing a job doing taxiways at RSW airport in Ft. Myers, we automated a dozer and added Topcon Millimeter GPS to one of our motor graders to help in the finishing part of the job. Right out of the chute, it was a success for us."

Fast forward to 2022 and a growing sense that those same benefits could be realized in the creation of ponds or lakes, a big part of their workload. According to Donahue, that is one of the more vexing jobs on any contractor's radar – particularly in areas with a high water table. Traditional verification approaches such as painting marks on the side of the excavator boom,

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having a man in a boat with a grade rod or, in some cases, having a rod man stand in an excavator bucket to verify the pond bottom, have long proven risky and inefficient.

“When we learned that we could use the GPS solution to essentially ‘see’ the bottoms of the structures we’re building, we knew it’d be a good fit. We were not wrong.”

Working with the Lengemann team, SFE outfitted a John Deere 870 and Volvo 750, with Topcon indicate-only systems — and again, the effect was head-turning.

“Even though the solution we chose did not provide full control as it does on the dozers and graders, we understood that going in,” he said. “But we were still blown away by the fact that our operator could look at the screen in the cab and know exactly where he was — and where he needed to be. That was huge for us.”

Because the region’s high water table affects most every aspect of SFE’s projects, pond construction is almost an inevitability. According to Cory De Vries, also a superintendent and SFE’s GPS specialist, that plays nicely into the excavator system’s strengths.



“Ponds are in almost every design plan we encounter,” he said. “In addition to catching runoff and meeting design considerations, pond construction can be driven by the cost of fill which has literally doubled in this area of late. Rather than importing fill, developers today are opting to get their material by excavating a lake or pond. As a result, we find ourselves continually tapping the benefits the Topcon system brings to the job. Our operators are really good, but, in the past, our guys were continually checking slopes because of breaks, etc. Digging wet, where you can’t see what you’re doing takes a lot of time — getting out, checking, getting back in, making necessary corrections. With GPS, you do it once and you’re done.”

The system to which De Vries refers, combines Topcon GNSS global positioning technology and machine sensors with a GX touchscreen color display to provide SFE’s operators with an at-a-glance solution for excavation accuracy and efficiency. The solution is also easily upgradeable for fully automatic operation — which SFE is currently considering — and is configured for easy integration into Sitelink3D, Topcon’s real-time job site management solution.



“We cover a lot of area throughout this region and have anywhere from eight to 20 jobs going on at any given time,” said Donahue. “The logistics of managing all the machinery, the files, the model revisions, etc., can be a challenge. I can see Sitelink3D saving us a lot of time and effort.”

One of SFE’s current projects, the Three Oaks Parkway Extension in Bonita Springs, Fla., is typical of the pond-heavy situation SFE regularly encounters. Though only 2.2 miles in length, the project calls for the creation of three ponds, each five acres in

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size. While many companies dewater an area before digging a pond, SFE's preference is to do them without the dewatering process, making the GPS solution all the more valuable.

"We are currently dealing with a lot of rock on the second pond," said Donohue. "But now, rather than going through that manual grade check process to determine where the operator is hitting rock, we simply call him and ask him to verify it on screen. Dealing with issues like that – and eliminating the need for re-work – has made a world of difference for us."

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