

# CONSTRUCTION

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ACP



**GNSS Technology Transforms  
Project Delivery for Southern  
Concrete & Construction**

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According to SCC's Boulware, GPS-based machine control minimizes reliance upon surveyors, which is a direct cost savings to the contractors they work for. He sees the improved onsite efficiencies as a plus for everyone.



# CONCRETE SOLUTIONS

Tapping Innovative Technology Yields Big Benefits for South Carolina Concrete Specialist

By Larry Trojak

Despite the success some concrete contractors have had specializing in a particular practice or area of expertise, versatility across the concrete spectrum wins the day almost every time. Being able to provide a broad range of concrete services allows a contractor greater success, both in initially winning the bid and subsequently meeting the needs of its clients. For those reasons, Southern Concrete & Construction (SCC) chooses to offer everything from something as simple as a simple sidewalk pour to massive bridge deck repairs.

A believer in the need for steady improvement, the company has also embraced GNSS-based

technology to take many of those varied applications to their next level in both speed and efficiency. As a concrete contractor working the North/South Carolina and coastal Georgia regions, it is a practice that has served them well.

## Quick Ascent

Formed in 1997 by Kelly and Danny Boulware, Southern Concrete & Construction is a minority-owned company based out of Anderson, South Carolina, with an office in Charleston, South Carolina, and employs between 70 and 80 people. According to Brandon Boulware, SCC's Divisional Manager — and son of the company's owners — since their humble beginnings, things have taken a decided uptick in a number of ways. “My parents started out simply, with a

focus on building box culverts,” he said. “They grew the business gradually, but in recent years, we’ve really stepped up the pace. Today, between our structural and road divisions, we perform 50 to 60 projects a year, and those jobs can range in value from \$300,000 up to \$10 million. What hasn’t changed is our key goals, which are to provide a quality product while forming lasting relationships with our customers. We do so in a way that is often seen as being archaic by many these days: through honesty and integrity. My parents founded this company on those principles, and we’re committed to carrying them on.”

SCC currently lists as its specialties: the installation of box culverts, concrete paving, paved ditches, curb and gutter work, medians, slope protection, storm drain-





■ Southern Concrete's finishing crew works on a section of the more than 2.5 miles of slipformed concrete barrier.

age structures, barrier walls, retaining walls, MSE walls, catch basins, and more.

"We try to be the go-to source for all concrete construction matters in the area," Boulware said.

### Streamlining the Workflow

In 2018, Boulware decided to up SCC's game by implementing a GNSS-based solution on its Power Curber 5700-C Slipform Paver. Working with the team at Georgia Surveyors Exchange Company, they took delivery of Topcon Millimeter GPS — their first foray into the GNSS realm. Doing so, Boulware said, was predicated as much on what it could do for the customer as the benefits it could provide SCC.

"One of the key advantages of GPS-based

machine control of any kind is that it minimizes reliance upon surveyors," he said. "That's a cost savings for the contractors we work for, which in turn is motivation for them to choose SCC. For us, the direct benefit is in eliminating the need for string-line in our pours, which has dramatically improved our onsite efficiencies. And that's actually a plus for everyone."

The solution to which Boulware refers, Topcon Millimeter GPS, leverages GNSS for horizontal accuracy and enhances it with a zone laser reference. Doing so improves the overall vertical accuracy of the curb machine — in SCC's case, their Power Curber 5700C.

"The combination of GNSS and laser is a powerful one for letting the paver know its position — and the project's design — at all times," Boulware said.

There are times when onsite obstructions — tree canopies and warehouse structures, for example — make the use of the Topcon Millimeter GPS prohibitive. For those cases, Boulware calls upon a pair of Topcon LN-150 Layout Navigators to provide an LPS solution. Doing so, they bypass the need for satellite tracking or a base station, using optical angles and distances to determine location and communicate that to a prism located on the curb machine.

"On a recent warehouse job, we were on millimeter the majority of the time," he said. "However, when we were up against the buildings and the signal became tough to maintain, the LN-150s were a great workaround. It's nice to always have a Plan B and, even though we don't need it that often, LPS with those robots is ideal."

### The Pour, The Barrier

On a separate job site — located more than 200 miles north of that warehouse — in Clayton, North Carolina, SCC could recently be found contributing to the widening of a major interstate highway. One of the primary east-west corridors through the eastern part of the state, U.S. 70 is — in addition to a hurricane evacuation route — a major transportation road and a favorite choice for access to coastal beaches. The highway is currently undergoing a significant upgrade, one facet of which involves SCC using a Power Curber 7700 Multipurpose Slipform Machine to construct more than 13,000 feet of concrete barrier wall on an eastbound entrance ramp.





“Work on this project actually started in late 2021, but we didn’t start until early August of 2023,” Boulware said. “The job is fairly straightforward. We are slipforming better than 2.5 miles of barrier wall as well as some bridge parapet work. The barrier, a standard single slope design, is 49 inches tall and measures 8 inches [at] the top and 24 inches at the base. As is always the case now, we bid this job with the use of Millimeter GPS in mind, knowing it would eliminate the time- and labor-intensive use of stringline. It just allows us to continuously pour without having to stop, pull string, and re-set. So, not only can our bid be more competitive, as mentioned, it saves the contractor from having to hire a surveyor. So, there are savings across the board.”

At the Clayton site, each morning SCC would set a pair of Topcon LZ-T5 Lasers about 300 feet apart and generally add one more in the afternoon to get them through the 1,000 feet of barrier wall — with expansion joints every 80 feet — they were slipforming each day.

“The mix design for the wall was a hearty one. Down here, they call it Class AA, but it is essentially a 4,500 psi mix with a 1.5-inch slump,” Boulware said. “However, the 7700C

handled it great, and we were able to get the production we needed each day.”

He added that, even though the learning curve for the Millimeter GPS solution was an easy one, the support provided by Topcon and Georgia Surveyors Exchange, the area Topcon dealer, has proven invaluable.

“The system is pretty user-friendly so that helped,” he said. “However, when we initially bought it, Topcon sent a couple people out for two days while we got our feet wet. And, if I need any additional help, Topcon and Georgia Surveyors are just a phone call away. That peace of mind is important.”

### Impactful Team

While the 5700-C was a fairly new purchase for the U.S. 70 widening project, Boulware said they will have no problem utilizing it moving forward.

“For one thing, it is an extremely versatile machine, capable of everything from barrier wall like this to bridge parapet to road paving applications — even tunnel work if needed,” he said. “The fact that we can pair it up with a powerful solution like Topcon Millimeter GPS makes it that much more valuable, both to us and those who hire us. The reputation we’ve established as a company that gets things done on time, in budget, and right the first time will just keep growing.”

■ A look at the 49-inch single slope wall prior to slipforming. The wall measures 49 inches tall, 8 inches at the top, and 24 inches at the bottom.