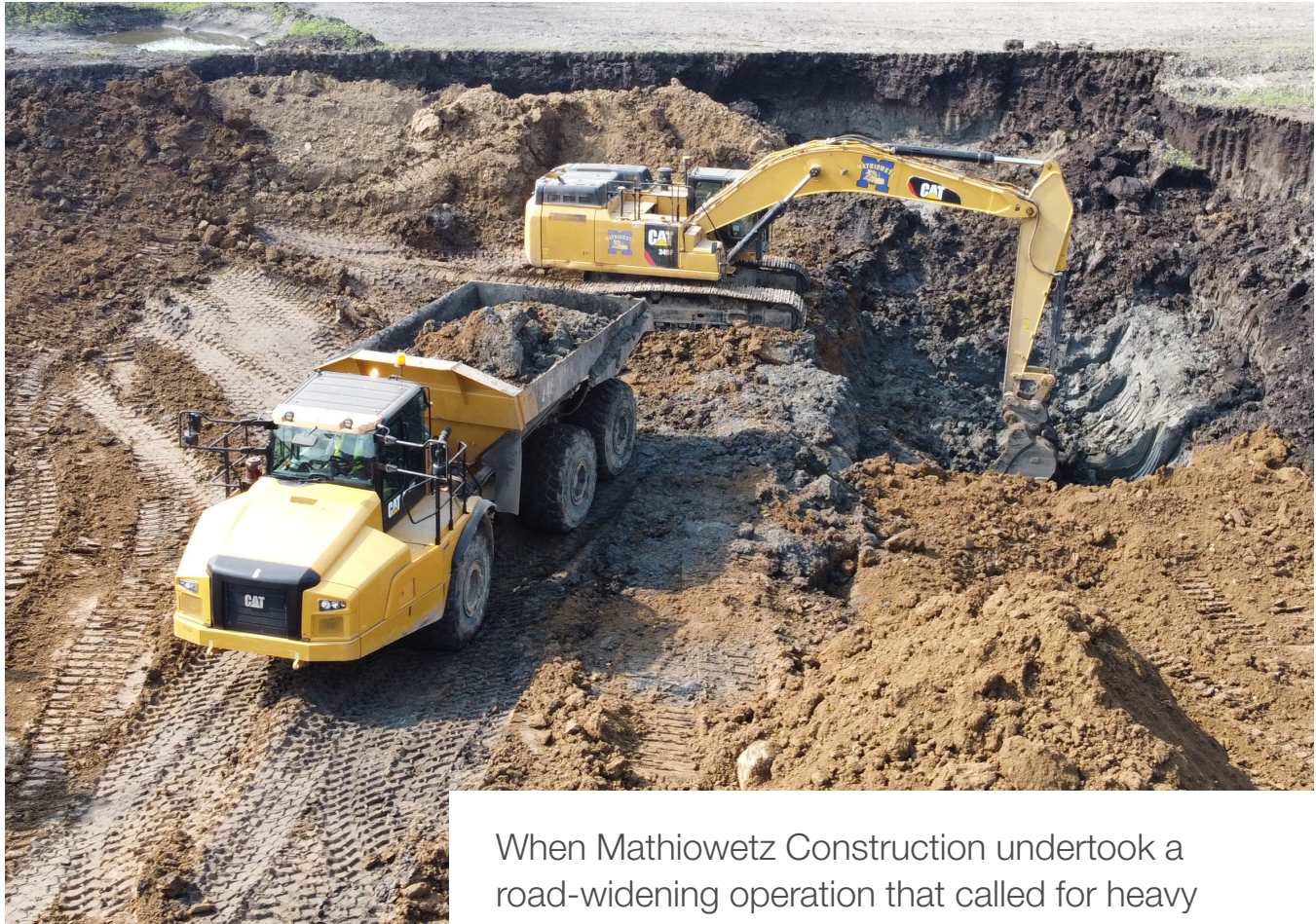




The Muck Stops Here

The process of ensuring soil stability in major Minnesota highway expansion is made simpler with machine control.



When Mathiowetz Construction undertook a road-widening operation that called for heavy replacement of sub-standard soil with more structurally sound material, it needed an efficient, effective accurate means to do so. Because machine control is a key component of almost every operation the Sleepy Eye, Minnesota-based contractor performs, they turned to it for the excavators involved in the mucking operation. The result was not only the benefits mentioned above but also the elimination of a potential bottleneck on the operation.

Company

Mathiowetz Construction
Sleepy Eye, Minnesota

Project

Widening of Trunk Highway 212
in west-central Minnesota

Topcon Products

X-53, X-53i machine control systems;
Sitelink3D site management solution

Topcon Dealer

RDO Equipment, Bloomington, Minn.

Trunk Highway 212 is a key east-west artery linking the Twin Cities of Minneapolis-St. Paul with numerous towns and businesses in western Minnesota and eastern South Dakota. In early 2021, the State of Minnesota and Carver County broke ground on a \$27.8 million project to widen several

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sections of the highway that were still two-lane road in order to improve safety, increase efficiency of freight movement, and implement the state's end-to-end, four-lane vision for Highway 212.

Having to perform a mucking operation in several areas of the project was not out of the ordinary for Mathiowetz Construction. What did cast a different light on the project, however, was the severity of the work needed in some areas to make the road happen.

“We took borings to determine the types of soils, what kind of structural stability is provided, and what moisture is present,” said Brett Mathiowetz, the company's executive vice president. “We encountered areas in which we thought we'd only need to excavate down six or seven feet and ended up going down past 20 feet — even into the low 30s. But that's just part of the job.”

Veterans to this type of work, and proponents of GNSS technology from Topcon for over two decades now, the company runs 30+ systems on their equipment companywide — more than a dozen at the Highway 212 site alone.



“Our excavator operators are using either the Topcon X-53 or X-53i solution on their machines and getting outstanding results,” said Mathiowetz. “Having the ability to know precisely where their bucket is positioned eliminates a continual need for grade checking; that's really key to keeping production levels up.”

Just as the means by which Mathiowetz verifies surface elevations have changed over the years, so too, has the methodology for determining quantities removed. What was once a time-consuming part of the job, prone to disparity, is now fast and accurate, said Mathiowetz.

“In the past, quantity info could differ greatly, depending on who was gathering it — figures could be off by as much as 25-30,000 cubic yards,” he said. “Today, we use Sitelink3D, a site management solution from Topcon that provides a continual stream of information from the machine — including how much material has been cut, where we are working, and the quantities moved. From there, in real-time, it is automatically uploaded onto a web portal where we, the county or the state can access it as needed.”



“ Although a consultant still checks the surface and compares quantities with Mathiowetz's team, the [verification] process — that used to take hours — is now being done in minutes.

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Although a consultant still checks the surface and compares quantities with Mathiowetz’s team, the process — that used to take hours — is now being done in minutes. “And, at the end of the day, we are generally within a couple hundred yards on 150,000 yards of material,” he said. “That accuracy and convenience, coupled with the lack of strain on the relationship with the parties involved, is a very big deal.”

By project’s end in fall of 2022, Mathiowetz Construction will have moved more than one million cubic yards of soil — including the sand and aggregate used in the various parts of the mucking operations.

“This has been a great job made even better by the Topcon solutions we bring to the job every day. But we have also been blessed with some of the best people working today. I really feel we have the best of the best, both in people and technology.”



A [full-length version](#) of this story is on the Topcon website.



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