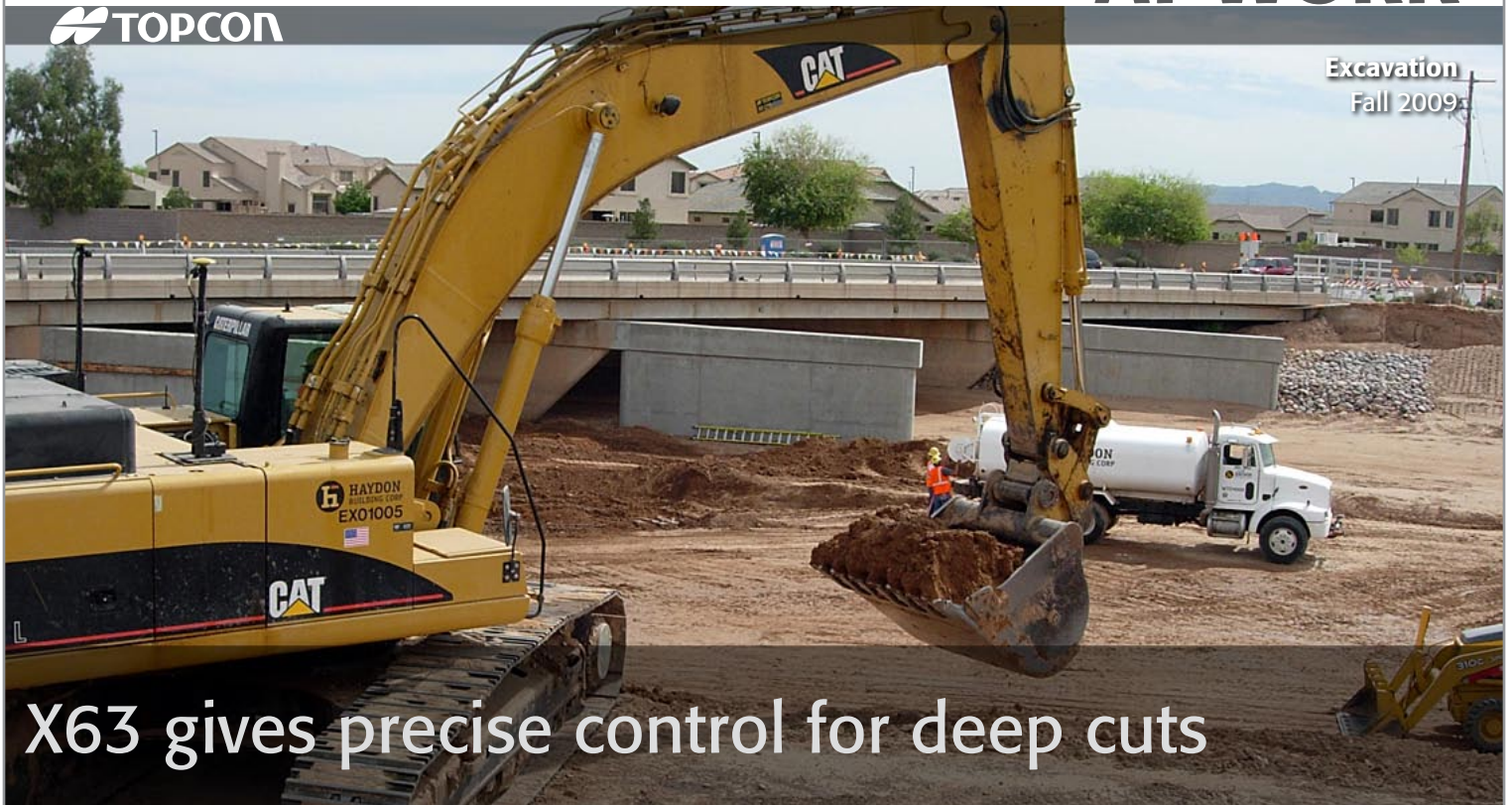


AT WORK

 TOPCON

Excavation
Fall 2009



X63 gives precise control for deep cuts



Jeff Fields of Haydon (left) and Todd Hermesen of Branco Equipment

In early 2009, Haydon Building Corp., Phoenix, was awarded a \$7.9 million contract by the Town of Gilbert, a suburb located southeast of Phoenix, for bridge widening and roadway section improvements among other work along Higley Road, a major north-south arterial. A lane was to be added in each direction over a wash in the Eastern Maricopa Floodway that passes under the existing 450-foot bridge and Haydon started work in October 2008. Haydon had recently adopted Global Navigation Satellite System (GNSS)-enabled machine control and saw an opportunity to use the technology for excavating the bridge piers.

The use of GNSS eliminated the need to stake the excavations and for a surveyor to verify the location, dimensions and wall slope of the footing excavations, saving Haydon and the owner time and money.

Company: Haydon Building Corp.

Location: Phoenix, AZ

Project: Pier excavations for Higley Road bridge-widening

Location: Gilbert, AZ

Scope: Verifying the location, dimensions and wall slope of 10 footing excavations of 27 feet deep, 97 feet long and 70 feet wide that support five piers on either side of an existing 450-foot bridge that support two new traffic lanes.

Topcon Products:

X63 excavator control system

GX-60 color touch screen control box

3D-GPS+ machine control system

Topcon Dealer:

Branco Machinery
Gilbert, AZ

www.brancomachinery.com

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X63 gives precise control for deep cuts

'If we wouldn't have had this system, we would have had to have a grade checker out here the whole time, pulling stakes and checking the slope continually. I would say it would have taken us a half a day to a day longer.' – Troy Gjerde, Project Manager, Haydon Building Corp.

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Just as importantly, use of the technology also eliminated the need for topographical verification via conventional surveying methods, and for a worker to physically enter the excavation for verification, which would have necessitated time-consuming shoring procedures and created a less safe work situation.

Haydon also subscribes to a network that provides positioning corrections using cellular technology. Branco Machinery of Gilbert, which also sold and services Haydon's Topcon Positioning Systems GNSS equipment, set up the TAZNet (Topcon Arizona Network) in mid-2007, giving contractors the ability to start grading and excavating immediately, without the need to deploy a separate base station on each jobsite. The base station can instead be converted to a rover for survey work on another project.

Haydon's Caterpillar excavator was recently equipped with Topcon's X63 grade-control system, which is specifically designed for excavators. The system consists of four temperature-compensated 360-degree CAN-based tilt sensors that measure angles from the cab,



The bridge on Higley Road, a major north-south arterial east of Phoenix, crosses a wash in the Eastern Maricopa Floodway. A lane was to be added in each direction, necessitating the construction of five piers to support each new traffic lane.



boom, stick and bucket. As the pier footings were excavated, the operator viewed on the GX-60 in-cab monitor the machine's exact position on the site, in addition to the bucket's constant position. By viewing the 3-D digital site model on the monitor, the operator avoided over-excavation and minimized material waste.

Project Manager Troy Gjerde recalled the speed at which the 1,000-cubic-yard footing excavations were dug and graded over the previous three weeks and added that the system provided positioning accuracy within one-tenth of a foot. "If we wouldn't have had this system, I would say it would have taken us a half a day to a day longer," he said.

Fortunately, the operators' learning curve was not steep in terms of learning to use the X63 system, said Gjerde. "Believe it or not, the guy who's the least experienced on the excavator did the best job with the system," Gjerde said. "I don't even think it was a matter of hours for them to learn it."

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Topcon's X63

3D Machine Control for Your Excavator

Topcon's X63 provides the operator with all the information needed to expedite excavation tasks.



Unlike laser excavator systems, X63 enables the operator to "see" his machine's exact position in relation to the site, enabling precise positioning over utility centerlines. In real time the operator can also see the position of the teeth of the bucket compared to the finish design which is very helpful in deep cuts, blind excavations or when working around structures.