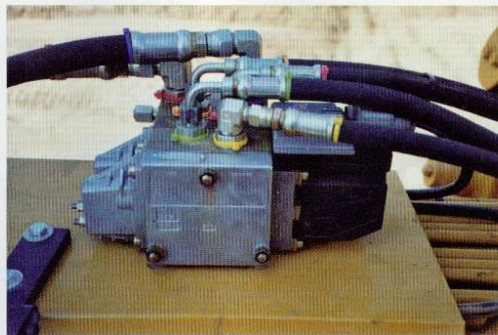


# Grading With Satellite Help

*GPS-controlled system is automated,  
accurate and efficient*

■ By Matthew Phair



**A** big part of launching any sprawling project is getting the earth contoured just the way it needs to be. Surveying has come a long way over the years, thanks to improved optics, lasers and computers. But eliminating traditional surveying, which is now almost possible, has taken an act from above — from satellites, that is.

Top Left: Typical motor grader with GPS satellite antenna hooked to vibration absorbing pole.

Top Right: Dual-valve hydraulic unit that controls raising and lowering the left and right sides of the blade.

Right: View from motor grade driver's seat of antenna, plus two base-station antennae inside trailer.

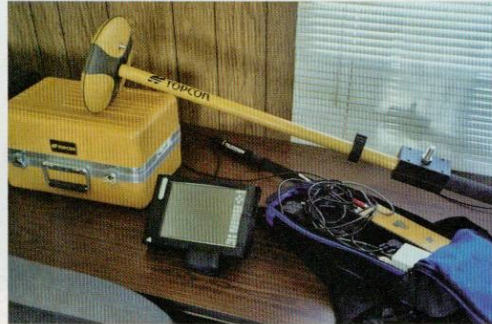
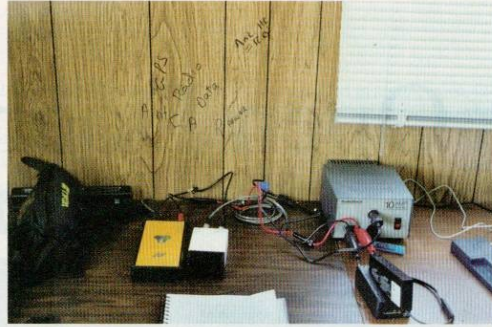
Electronically controlled, satellite-guided systems that automatically adjust the height of a motor grader blade or dozer blade are just coming into their own. As the sitework contractor, Vollers Excavating and Construction, North Branch, N.J., is experiencing a 95 percent cut in survey outsourcing costs on the Crate & Barrel project. Vollers is working directly for the Rockefeller Group.

"They looked at it for a year and a half. But the reason they bought it is



because they can achieve stakeless grading," says Jim Cleary of Cleary Machinery, the Bound Brook-based dealer of the Topcon system. "We put every possible point and contour onto a computer on a machine on the job.

"We graded the building pad in about one third the time, it was within 0.5 inch everywhere, and it was all machine controlled," says Vollers Superintendent Bob Murray. "GPS is



good with any kind of slope. It's more accurate and offers more operational flexibility. And if it rains, for example, you don't need extra stake out."

While GPS systems have been competing for years, Murray mentioned Topcon's exclusive access to a second set of Russian satellites, in addition to the U.S. satellites, as being one reason for going with Topcon. Called the Glonass system, the 12-craft array orbiting the Earth is a trimmed down version of the U.S. system of 24 satellites. Topcon claims that the additional access enables it to achieve greater efficiency than its competitors.

Vollers' relationship with Cleary also played a part in taking the plunge. "Jim Cleary has been a steady supplier of ours for years. If you have a problem, they're right on top of it. They won't leave you in a lurch."

**"We graded the building pad in about one third the time, it was within 0.5 inch everywhere, and it was all machine-controlled."**

Vollers is using AgTech software to create takeoffs and 3-D models of the work, and they report literally being able to just hit a button to create them. "It's amazing and it's revolutionary," adds Murray.

But he cautions users may have problems if they're working in a city between buildings or lots of tree cover, like in the woods. Under both conditions, satellite signals can sometimes be spotty.

Another downside is the cost, with users having to be willing to invest roughly \$200,000 for the equipment. "But they'll recoup it this year in survey costs," adds Cleary.

Looking forward, Murray is planning much more work with this new technology. "I can't think of anywhere I wouldn't use it." Cleary is currently fitting two of Voller's bulldozers for an upcoming job. □

**Top Left:** To the left of seat mounted on the side of the cab is the GPS receiver with built-in radio, which communicates with base station.

**Top Right:** Based station electronics consist of yellow satellite receiver and white radio hooked to standard desktop computer (not visible).

**Bottom Left:** Machine dashboard is fitted with Windows-based, touch-screen computer, which displays a picture of the machine working on the design.

**Bottom Right:** Survey rover system includes backpack, which contains receiver and radio, plus pole-mounted GPS antenna and portable computer.