



Machine Control
Fall 2010



Celery Fields forever: 3D-MC² perfect fit

AT WORK

Company: Lee Mar Construction, Inc.

Location: Ft. Myers, Fla.

Project: Celery Fields Regional Stormwater Facility Expansion

Location: Sarasota, Fla.

Project Scope: Massive expansion of 110-acre natural flood mitigation zone.

Topcon Products:

Topcon 3D-MC and
3D-MC² machine control systems

Topcon Dealer:

Lengemann of Florida
Altoona, Fla.

www.lengemann.us

In order to ensure that stormwater runoff from area farms has a chance to be naturally cleansed and filtered before emptying into Sarasota Bay, Sarasota County recently contracted with Lee Mar Construction on a major \$7.2 million expansion of the Celery Fields Stormwater Facility (CFSF), a natural flood mitigation zone. The expansion presented a number of challenges, not the least of which was a need to strip away a top layer of fertile soil, grade the sandy layer below, then cover it again with a nine-inch layer of the same topsoil. Drawing upon its expertise with machine control—including Topcon's newest 3D-MC² system—Lee Mar was able to meet these challenges head on.

Settle Down Now

The rationale behind the project at Celery Fields is one that has already been in place and proven throughout the immediate area," according to Butch Felts, Lee Mar's owner.

"We are taking this 110-acre section and lowering it, so there will be about six-inches of water across the whole site. It will then be planted with mitigation foliage which will filter and clean the water before it goes to an outfall."

To make that happen, the county first wanted Lee Mar to remove the topmost layer of black dirt, stockpile it, cut the grade in the sand layer below, then bring back and re-spread the layer of topsoil. "Keep in mind that

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cutting the subgrade down to the depth we need will itself involve moving 1.3 million cubic yards of earth," says Felts. "The .75 foot layer of topsoil needed for the plants represents another 110,000 yards of material to be moved back in. We knew there had to be an alternative to all that double and triple handling."

Effective Alternative

Lee Mar's workaround for the situation was innovative—without their machine control capability, it might not even have been feasible.

"We are excavating down to the sand level and simply putting the topsoil aside for a very short while. Then, the dozer grades the sub-grade to a specific elevation—with contours as needed. At this point, the excavator operator loads out the excess sandy material to be hauled across the street for construction of an 85-foot high observation hill. Once the dozer has a particular area of subgrade to spec, the excavator replaces the topsoil that had been set aside and the dozer comes back in to grade the upper layer. It is all very systematic and extremely efficient."

The Need for Speed

According to Felts, it was the company's use of machine control in several of its dozers that made all the difference at Celery Fields.

"It is really all about the speed at which the work can be done and the level of precision machine control provides. We have an added advantage in that we also run Topcon's latest system, 3D-MC² on a John Deere 764 High Speed Dozer. The operator has data for both soil layers loaded into that machine which allows him to first set it for doing a section of the subgrade. Then, with that level graded and shaped to spec and topsoil placed over it, he simply switches offsets and is ready to grade the top layer. It's a seamless operation and nothing can do it as fast or as accurately as the 3D-MC²."

At Celery Fields, Felts estimates that, by doing things only once, they are saving 25% to 30% in time. "Without machine control, a company would have to go out and grade it off, put stakes out, laser the grades, come and cut it, and then have to check it again to verify that it's correct. By the third time, they might get it right. Now we get it right the very first time. Machine control is a big part of our operation; there's just no disputing it."



ABOVE: Fine grade - Lee Mar uses data for both soil layers loaded into its John Deere 764 HSD running Topcon's 3D-MC² machine control. This allows the operator to do a section of the subgrade and, when finished, simply switch offsets and grade the top layer.

BELOW: Richard Freund, left, co-owner of Brooks & Freund, the general contractor for the Celery Fields project, and Butch Felts, owner of Lee Mar Construction.



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