CASE STUDY

Use of Trimble Earthworks

Overview

Flannery are a leading supplier of machine guidance and control technology within the UK plant marketplace and have been working with this technology for over 15 years.

Our experience means we fully understand the importance of working collaboratively at an early stage. This enables us to understand the sites digital infrastructure, any training requirements and the appropriate technology to meet the project needs.

The Technology

The new Trimble Earthworks for Excavators Grade Control Platform is designed to help users do more in less time.

The Trimble Earthworks Software runs on a 10-inch Trimble TD520 display with an interface is optimized for ease-of-use and productivity.

Operator can personalise the interface to match their workflow and a variety of configurable views make it easier to see the right perspective for maximum productivity.

Trimble Earthworks allows data files to be transferred to or from the office wirelessly and automatically so the latest design is always loaded.

Trimble Earthworks is the first integrated 3D aftermarket grade control automatics for excavators and tilt-rotator attachments

Excavators can work semi-automatically, allowing operators to create smooth, flat or sloped surfaces more easily.

How it works:

1. The operator places the excavator in Auto mode.
2. The operator controls the dipper ram.
3. Trimble Earthworks controls the boom and bucket rams.
4. This enables the operator to achieve grade consistency, with high accuracy, in less time by automating excavator operation.

Site

Volker are contracted to provide the onshore high voltage cable for the 950MW Moray East offshore wind farm in Scotland.

They are responsible for the installation works connecting the wind farm to the National Grid at the onshore substation at New Deer in Aberdeenshire.

The Trial

Having collaborated closely with Trimble on numerous projects Flannery worked with Volker Fitzpatrick on the 950MW Moray East Cable Contract to explore additional benefits provided by Trimble's Earthworks Control platform.

Our operators' feedback that the system is intuitive and easy to personalise (so that they could set up the screen to suit their task). The fact that all functions are available in three clicks also supports the manufacturer claim that the system is very easy to use and set up.

The integration between Trimble and the other integrated technology on the CAT Next Generation Excavators was also positive - allowing accurate payload measurement and the E-fence feature prevented the excavator from moving outside site-defined set points.

Having this technology on both Excavators and Dozers ensured quick set up time and provided greater efficiency and accuracy due to the automation of cutting and trimming activities (rather than the operator following on screen guidance).

Conclusion

Using Trimble Earthworks in conjunction with the new Next-Gen Caterpillar models has huge benefits for the plant supplier and the contractor. This is the next stage to true machine automation and the production benefits were identified immediately.

Caterpillar studies have identified productivity gains of 100% compared to guidance. On the Volker project we were able to achieve an additional 200 metres of production per day compared to non-GPS machines. In addition, we were able to demonstrate other benefits including the following:

1. Operator capability isn't so critical as the machine in automatic mode compensates for any deficiencies in technical ability.
2. No re-work. We can accurately excavate to level in one pass.
3. Reduced set-up cost and time. We don't need to rewire and reinstall wiring looms it is already built in.
4. Reduced likelihood of component or cable failure. As the technology is built into the machine it reduces the risk of failures associated with fitting after market equipment.