Customer:
Kelston Sparkes Plant Hire and Earth Moving Contractors

Project:
Creation of Mercia Marina

Solution:
Trimble GCS900 Grade Control System

Case Study

Float my Boat

Trimble GCS900 grade control system is perfect solution for marina earthworks

Just off the A38 in Derbyshire, Willington Lake is undergoing the first stage of its transformation from a trout fishery into a 585 berth Marina for long boats. Set in 74 acres of unspoilt countryside, the new Mercia Marina is taking shape following 6 months of earthworks undertaken by Kelston Sparkes Plant Hire and Earth Moving Contractors.

Confronted with around 40,000 m^3 of silt to move into low areas of the lake and 75,000 m^3 of suitable material to re-engineer into piling platforms for the berths, Kelston Sparkes knew that the job would be almost impossible to set out using traditional methods and that their Trimble GCS900 grade control system would be the perfect alternative. Managing Quantity Surveyor Kevin Primmer explains, "If we'd tried to set out using any other method than machine control, we would have been beset by problems and delays. Deep silts meant that we couldn't open too many areas at once to work on because silt goes back and forth on itself. On top of this we would have had to move even more material to make room for setting out and of course the muddiness of the site would have hindered us even more making stakes almost impossible to use. Trimble's UK distributors KOREC had already supplied us with two GCS900 dual GPS systems for a previous project and for this job we used them on CAT D6R and CAT D6K excavators. They really came into their own at the marina and the site is entirely stakeless apart from setting out for fencing lines."

Trimble's GCS900 Grade Control System has meant that the muddy Mercia Marina site has been almost stakeless.

The Trimble GCS900 system uses dual MS990 GPS Smart Antennae mounted on the top of the dozer`s blade to accurately position it many times per second. These GPS Smart Antennae receive corrections transmitted via a radio from the Trimble GPS base station which is set up on the office roof and easily managed by the site foreman. The on-board computer uses this position information and compares it to the design information to compute cut or fill to grade.

Kevin continues, "We already had one driver experienced with the system and following training the other was soon up and running. Our design data is supplied by the client in 2D and we convert it to 3D using Trimble Terramodel software and then export it into Site Vision and onto data cards which go straight into the control box in the cab. If the design changes we can get that new information onto a card and into the cab with almost no downtime. Although the driver has everything displayed on screen in front of him, he often works using just the light bars.

The system has definitely delivered the +/-50mm we required on the pile bays and we've also been doing the roads to around +/-20mm – all work has been to the required tolerances. For us the main advantage of using this system has been the time savings and I estimate that we've saved around a month on the contract overall. We've had good back up from KOREC's technical support and they've quickly put right any minor problems.

Established in 1952, the Bristol based Kelston Sparkes Group is an independent, family run company and owns one of the largest fleet of heavy earthmoving plant in the UK. www.kelstonsparkes.co.uk

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