



# SATELLITES BRING SAVINGS TO EARTHWORKS

Commuters travelling through one of the most exclusive areas of Cheshire, England, United Kingdom will soon be able to do so without the usual holdups and inconvenience of traffic chaos thanks to Highways England, Costain, the Walters Group and Leica Geosystems.





The A556 Knutsford to Bowdon road improvement scheme is a 7.5 kilometre stretch of dual carriageway running from junction 19 of the M6 to junction 7 of the M56. Numerous accidents have occurred over the years on this stretch of road and the local community has been very vocal about wanting road improvements. Speed cameras have been introduced to try and reduce speed-related incidents, but an increase in traffic to almost 50,000 vehicle movements per day has seen holdups and delays on the road increase to a daily event. The existing dual carriageway encompasses a variety of busy traffic light controlled junctions, and while these generate holdups, traffic turning right off the A556 causes further disruption. To alleviate these problems and to improve access to and from Manchester Airport, Highways England drew up plans to construct a new road to allow free flowing traffic between the motorway junctions with the help of Leica Geosystems Machine Control.

The Walters Group is based in Hirwaun, South Wales but operates nationwide on civil engineering and earthmoving contracts, currently operating one of the largest earthmoving fleets in Europe. Walters is the preferred earthmoving sub-contractor for Costain for projects throughout the UK, bringing its expertise to the table through Early Contractor Involvement (ECI).



This ECI allows both the contractor and sub-contractor to assess the best possible working methods for undertaking the project and negates the possibility of conflict as the job progresses.

While many road schemes in recent years have centred on realignment and widening of existing carriageways, the A556 will only involve altering 1km of existing carriageway with the remaining 6.5km in greenfield away from the existing road. The use of Leica Geosystems Machine Control proved to be the perfect accompaniment to this construction project.

#### STAYING ON TRACK WITH GNSS SOLUTIONS

The cut and fill project will keep the muck-shifting team from Walters busy for 79 weeks with the project being split into five separate sections, dictated by existing lanes and roads that cross the new route.

The muck shifting is well underway with Walters employing four teams in various sections of the project. The initial section leaving the M56 has been completed using a pair of Walters 730C trucks ferrying soil to a Leica Geosystems-GNSS enabled Cat 329D, which was undertaking the final trimming work to one of the large drainage lagoons to be built on the site.

Each muck shifting team has been allocated a section of the project and consists of an excavator using Leica iCON excavate iXE3, which provides integrated tilt rotator support, giving the operator clear guidance information about the actual tilt and rotation position as well as dump trucks and a GNSS-equipped dozer.



Leica Geosystems Machine Control GNSS solutions have played a major part in the Walters armoury with the aforementioned excavator and four new D6T dozers resident on the site fitted with the Leica iCON iGD4 3D system. Working with GNSS reduces the need to have engineers out on site working in close proximity with moving vehicles and does away with the large amount of timber pegs and rails that have to be installed.

"The use of Leica's iGD4SP high speed dozer solution with GNSS as well as Leica's iCG82 GNSS machine receivers in each earthmoving team has significantly reduced the time spent on setting out for the project," explains Mark Sabbato, Walters works manager. "While time savings have been made using the GNSS machines, there is also a massive impact on health and safety. We don't need to have engineers walking around the site constantly, climbing batters and putting in profile boards. We have also encountered areas of poor material on the site and by using Leica's iGD4SP high speed dozer system, we are able to accurately measure the extra depth that has been removed resulting in more accurate figures being obtained for the project."

#### JUST THE RIGHT AMOUNT

While the excavator and truck fleet is mixed on this project, the same cannot be said of Walters choice of dozer. The company has purchased four new Caterpillar D6TLGP tractors for this project with the aforementioned Leica Geosystems GNSS solutions. The D6T is seen as the ideal machine for Walters' requirements and copes more than ably with assisting the excavators in obtaining the correct profiles and levels of dig. The dozers are used to clean up between each truck and profile the batters to the road.



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"Once the dozer has the topography on its system, it is by far the quickest and safest way of surveying the site and ensuring we do not remove too much or too little material," said Simon Maher, Walters project manager. "If we do have to remove more material than expected, we are able to quantify this almost immediately."

With the muck shifting season coming to an end, Walters plans to have the majority of the bulk earthworks completed before the wet weather sets in. This will allow the smaller excavators to concentrate on the final removal of material and placing of fill material over the winter months.

"Working this way ensures we can keep the project moving along as it isn't cost effective for anyone to be stripping soils through the rainy season," concludes Maher.

The use of Leica Geosystems Machine Control solutions has significantly reduced the time in setting out on the A556 Knutsford to Bowden road improvement scheme, improving overall site health and safety and productivity.

*A version of this article first appeared in **EarthMovers** magazine by Paul Argent, RPA Photography.*