

Plowman Craven introduces new UAV survey system for rail inspections



Plowman Craven has introduced Vogel Freedom, a UAV survey system designed for rail infrastructure surveying. Vogel Freedom is a survey-grade solution that surveys tracks without physical access. A novelty in the industry, the solution uses Plowman Craven's unique IP and offers benefits such as efficiency, safety and sustainability while maintaining Vogel's class-leading Band 1 survey accuracy.

Plowman Craven is a leading surveying company in the UK.

[Vogel Freedom](#) is 20% faster, 30% cheaper and 85% lower in carbon emissions than traditional survey methods, according to Plowman Craven. It reduces the time and costs associated with safety-critical staff, including by reducing the number of hours worked and allowing work to be conducted during the day.

The system enables comprehensive surveying of even the busiest and most inaccessible areas from a working height of 35 metres. It captures overlapping aerial images of an entire site with an advanced uncrewed aerial vehicle (UAV or 'drone') platform and 100MP camera, along with post-processed kinematic GNSS observations and precise inertial measurement information.

Lower number of boots on ballast

Plowman Craven has been one of the four approved suppliers of UAV services on a framework agreement with Network Rail since 2019. Vogel Freedom has been fully approved according to Network Rail Band 1 and 3 standards and feeds into the Department for Transport's railway plan in England and Wales until March 2029. Vogel Freedom helps de-risk the network and supports Network Rail's goals to lower the number of 'boots on ballast'.

Vogel Freedom is the next generation of the company's Vogel R3D system, which builds on its capabilities with additional compelling features. The updated platform can accurately determine its location without as many ground control points, so that ground control can be off-track or even outside Network Rail's boundaries.



Vogel Freedom, a UAV survey system designed for rail infrastructure surveying. (Image courtesy: Plowman Craven)

The UAV sector alone is estimated to contribute GBP45 billion to the UK's economy (equivalent to 1.6% of the GDP) and save UK businesses approximately GBP22 billion annually by 2030. The drone sector's potential for contributing to the economy was featured in the UK government's report called 'Pro-innovation Regulation of Technologies Review: Digital Technologies.'

"Vogel Freedom removes previous limitations to surveying and can add substantial value, particularly in the current economic climate, where cost-effective solutions have never been more important, all while improving workers' safety and ensuring a safe and efficient rail service for customers," comments Steve Jones, head of new business at Plowman Craven.

According to Tony Roffey, senior project manager at Siemens Mobility Limited, Vogel Freedom was used on the Victoria Phase project, initially for survey and sighting location areas and access points. "We found that the data could also be used in conjunction with software for Scheme Plans. The data proved invaluable for the Location Areas sighting forms and saved 'boots on ballast' time as some of the work was able to be completed via desktop," he states.