

Using drone surveillance capabilities to enhance quarry development planning and safety across multiple sites

EPC Metrics' technologically advanced collaboration is aimed at supporting on site surveying and achieving Zero Harm across numerous Tarmac quarry sites in the UK.

Project: EPC Metrics Drone Mapping Services

Client: Tarmac Group

Location: Multiple quarries across Tarmac group



An operating division of EPC-UK



The project

Applying the latest, effective technologies to digitally measure and map sites using drone capabilities, combined with advanced photogrammetry techniques and browser-based 3D surveys, EPC Metrics is further supporting its operational relationship with the Tarmac Group; digitalizing its quarrying processes, recording and analysing data gathered, and optimising numerous aspects of mineral extraction performance - fully and safely.

Piloted by Civil Aviation Authority (CAA) licenced operatives, the EPC Metrics' fixed-wing drone can obtain detailed survey imagery, comprising a series of overlapping high resolution photographs from known locations. The images are used to create precise 3D models of an area. With the scope to be geo-referenced using GPS, surveying practice is made safer, more accurate, cost-effective and reliable.

The objectives

- Prioritise safety
- Enhance quarry development and mineral extraction planning
- Heighten efficiencies across each quarrying operation in its entirety
- Improve accuracy with highly detailed imagery from a 42-megapixel camera
- Enable safer, remote operations
- Deliver advanced data analysis tools from volumetric cut and fill measurements, safety analytics, face height and distance measurements

Supporting technologies

Propeller Platform - a high accuracy survey data collection tool that processes formulas to map and measure sites using browser-based 3D surveys.

Alteia - a digitized software package that uses sets of A.I. applications to perform inventory and productivity assessments, cost optimisation and blasting analysis.

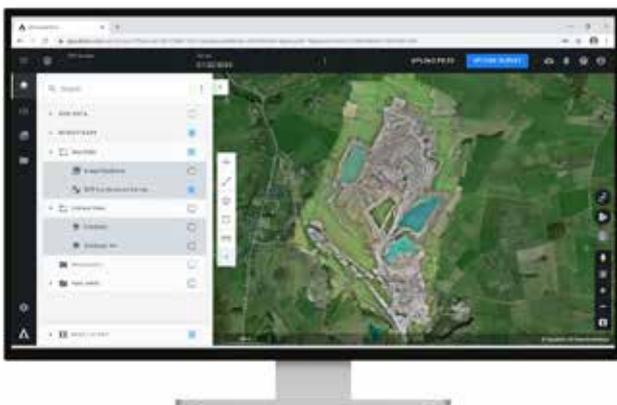
The survey data obtained from our **Wingtra** fixed-wing drone can be uploaded and processed in any software package for analysis outside of Propeller and Alteia, giving us total flexibility and versatility in our data.



A comprehensive set of tools

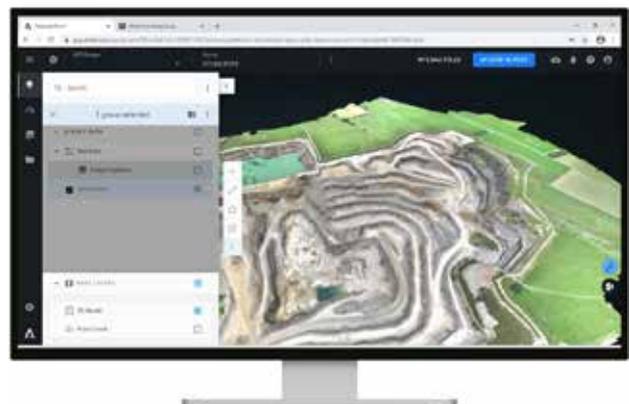
Using digitized techniques, we can upload our data capture into an appropriate surveying platform for 3D modelling to effectively realise automated stockpile analysis, cut and fill measurement, production monitoring, haul road gradient analysis, and safety analysis and compliance, in addition to many other relevant capabilities.

These tools enable the creation of high-accuracy data hubs for improved quarry management that capture survey information, generate 3D digital models and document progress at each critical stage, with all designs, surveys and measurements made available for customers to access.



Streamlined results

The capacity this advanced technology gives us to achieve improved documentation for customers at all key project stages is impressive. By performing high-frequency site surveys, we can capture changes on the quarry floor as they occur, and the 3D maps generated allow us to inspect and measure pit angles from a browser, further increasing safety on site. Haul road angles can be analysed and subsequently optimised to reduce fuel burn, and bund height measurements can be digitally checked, allowing alterations to be made that maximise operator safety.



“By integrating drone surveying techniques in the field, quarry teams can fully map, quantify, and understand structure planning. The highly detailed 3D models we create are providing engineers with the technology to ensure the best quarry development plan, advanced accessibility and improved fuel efficiency for road angles – all at the touch of a button.”

Trust and transparency

Our longstanding partnership with the Tarmac Group has been further reinforced with the delivery of collaborative communication tools that allow data, platform, and system sharing. By applying the information collected we're able to better link our operations within and across sites and perform both advanced Rock on Ground services and quarry development planning from the blasting perspective.

A digitalized quarrying future

By applying EPC Metrics' advanced drone surveying expertise, it is now possible to fully digitize survey team operations, setting the precedent in creating safer quarrying environments. We're supporting customers by providing tools and solutions to achieve safe, accurate site surveys, complete documentation at all stages, better managed inventories, and the beneficial results that can be realised from enhanced collaborative communications.



Planned procedure

- Confirm any flight restrictions within the local area, air traffic control or military zone permissions
- Develop, confirm, and agree a pre-flight plan, methodology and area to be surveyed
- Obtain all current in-situ ground control point locations
- Geo-reference the planned survey using GPS
- Introduce temporary ground control points to improve accuracy
- Fly the area using the Wingtra One Fixed-Wing drone and then process the detailed model on a platform of choice

"This highly accessible and informative technology is revolutionary in terms of quarry management. Its development has provided us with incredible visual capabilities and a level of analytical understanding that is currently unsurpassed, improving safety and operations with an industry wide view."

Values that define the way we work



Whenever the EPC Metrics team applies its high level of expertise within a customer environment, we conduct operations in line with a methodology that correlates with our parent

company's wider SPIRIT ethos, demonstrating **safety, passion, integrity, respect, innovation** and **teamwork**.

Implementing technologically advanced drone surveying practices across multiple Tarmac quarrying sites nationwide, those EPC-UK values have been both distinct and enabling.

EPC Metrics always places **safety** as the number one priority of any operation it works within. In supporting the digitization of Tarmac Group's 12 UK quarries, the team drew on the **respect** and evident **integrity** that has developed over more than a decade working as a professional collaboration. This, advanced through **teamwork**, has led Tarmac to trust in our knowledge and abilities and have confidence in our recently developed **innovative** technologies. Together our invested **passion** in developing digitized quarrying practices is realising results capable of achieving safer operations, now and for the future environment of the local community.

Find out more

To find out more about how EPC Metrics' solutions are developing the digital quarry, "The EPC Way", contact: ryan.ward@epc-groupe.co.uk

