

## Minimising risks and costs in commercial surveys

# Everything is Somewhere (EIS)

### The Challenge

- Conduct surveys of commercial property and development sites

### The Benefits

- Rapid completion of survey projects
- Significant cost savings for customers
- Improved health and safety for surveyors
- Better quality data for ongoing asset management



The property management and planning consultancy Everything is Somewhere (EIS) is using a suite of products from Esri's ArcGIS platform to help it conduct aerial surveys of commercial sites using drones. The out-of-the-box ArcGIS tools enable the company to deliver a fast, cost efficient service for customers, while reducing safety risks.

### The Challenge

Organisations that own, manage, develop or maintain large areas of land frequently need to conduct surveys to help them manage assets spread across their property, monitor changes in buildings and plan new developments. Traditional approaches to conducting such land and asset surveys can not only be expensive and time-consuming, but, in some cases, also dangerous. When sites are on steep ground, covered by potentially dangerous landfill waste or adjacent to deep water, for example, there can be significant health and safety risks for surveyors.

EIS identified an opportunity to transform traditional survey methods by using drones to capture aerial imagery of large sites. Its customers ranged from the owners of quarries and recycling facilities to large country landowners and it wanted to be able to offer these organisations a more cost effective survey service, together with a higher quality of survey data.

### The Solution

Jeremy Murfitt, Managing Director of EIS, had previous experience of using Esri's ArcGIS platform and so developed the company's new aerial survey service by optimising the use of several ArcGIS solutions. He didn't need to undertake any programming or customisation as he could access all the functionality he needed using ArcGIS tools straight out of the box.

At the start of each new survey project, Murfitt maps the routes that will be flown over a customer's site using ArcGIS Pro, Esri's professional desktop GIS software. He identifies the best take-off and landing sites and plans flights taking into account the 20 to 24 minute battery life of his drones. Finally, he uploads the survey maps to ArcGIS Online so that they can be viewed via a smartphone or tablet.

Once on site, the EIS surveyor uses Survey123 to photograph ground markers and record other attributes in a simple-to-use form, with all of the data being uploaded directly to ArcGIS Online. The drones are then set off on their pre-planned flights, capturing images and videos in high resolution.

Next, the images are processed using Esri's Drone2Map solution, generating output in 2D and 3D. EIS can then perform sophisticated analyses on the imagery using ArcGIS Pro, such as calculations of the volume of soil heaps, or create 3D visualisations of buildings using Esri's CityEngine. Depending on each customer's requirements, EIS can either supply raw data for integration into its customers' GIS systems or create Story Maps using ArcGIS Online to share information with customers in a highly visual and interactive format.

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“ Our ArcGIS-driven survey approach takes multiple elements of risk out of the equation, making it far safer to survey large, complex commercial and development sites. ”

Jeremy Murfitt, Managing Director, EIS



An orthomosaic model made from 700 images using Esri's Drone2Map

### The Benefits

#### **Rapid completion of survey projects**

Using ArcGIS and drones, EIS can conduct surveys of commercial property more quickly than with traditional survey methods and therefore deliver a highly efficient service to its customers. For example, the owner of a dockyard in Wales anticipated that it would take three surveyors six or seven days to capture data on site, plus a further two or three days to process the data. EIS was able to use its ArcGIS-driven approach to complete the survey of the entire site in less than six hours and deliver data back to the customer within three days.

#### **Significant cost savings for customers**

The efficiency of EIS's survey approach enables the company's customers to save many thousands of pounds on each survey. An organisation in Yorkshire, for example, paid 66% less than it had budgeted for when it appointed EIS to undertake an aerial survey of its landfill site rather than carry out a ground survey. Murfitt says, "The financial savings are significant, plus customers receive a larger volume of survey data. For some tasks, a combination of drones and ArcGIS produces a far better result, far more cost effectively than traditional survey approaches."

#### **Improved health and safety for surveyors**

As all of the analysis of sites is conducted using ArcGIS, at a desktop, surveyors can work far more safely. They no longer have to use survey instruments on steep slopes or above deep water and don't have to walk over rough ground crossed by open trenches or covered by potentially hazardous materials. "Our ArcGIS-driven survey approach takes multiple elements of risk out of the equation, making it far safer to survey large, complex commercial and development sites," Murfitt says.

#### **Better quality data for ongoing asset management**

By processing drone imagery in Drone2Map, EIS can present a large quantity of data on digital maps in a format that adds far greater value for customers. In one recent project, EIS surveyed a roof structure using a drone, eliminating the need for a surveyor to be raised above roof level in a crane basket, and created a digital map of the roof, comprising over 400 high resolution images. Over time, EIS will repeat this roof survey and add further layers of data and imagery to the digital map, so the customer can monitor changes in the condition of the roof structure.

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