Customer:
Panorama

Project:
Horizon Nuclear Power, Wylfa Newydd

Solution:
senseFly eBee Plus RTK

Case Study

Creating a successful aerial survey business in just 8 weeks

For energy infrastructure photographer, Geraint Thomas, investing in a fixed wing survey-grade UAV was like purchasing 'a business in a box'. Assisted by qualified training and support, he delivered high quality aerial imagery in just eight weeks.

Based just below the turrets of Caernarfon Castle in North Wales is Panorama, a gallery owned by professional, multi-disciplined photographer, Geraint Thomas. Whilst providing a wide range of services from landscape prints of Snowdonia to commercial shots for brochures, posters and websites, Geraint's speciality is energy infrastructure photography and, in particular, he has been producing a range of digital media for UK energy company, Horizon Nuclear Power, a Panorama client for over 6 years.

Horizon Nuclear Power develops new generation nuclear power stations and its lead site, Wylfa Newydd, is located on the Isle of Anglesey on land beside the former Magnox Wylfa Power Station (now being decommissioned). The company also has a second site near Oldbury in South Gloucestershire on the banks of the Severn Estuary.

At 1500 acres, the Wylfa Newydd site, which aims to create up to 850 permanent jobs, is the biggest infrastructure project ever undertaken in Wales and one of the largest in Europe. However, due to the complexities and size of this site, Horizon Nuclear Power was having difficult in sourcing a UAV photogrammetry surveyor to chart its development. The company therefore approached Geraint with a brief for the work to gauge his interest in taking on the project. This initial approach was made over Christmas 2017 with a requirement for the first aerial survey to be completed by the end of February 2018.

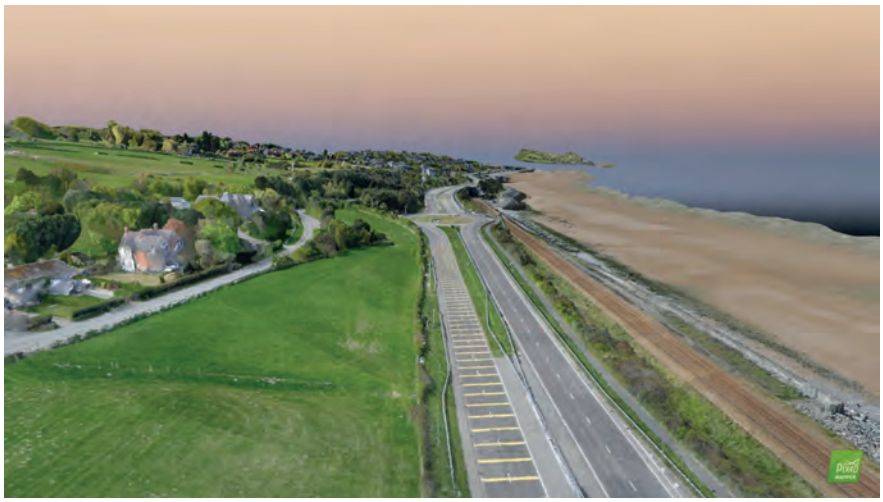
Learning Curve

Following some initial research, Geraint was confident that he could deliver the required data but he was also aware that with just 2 months until he had to deliver his first survey, he would have to move quickly. Initially time was saved because Horizon Nuclear Power had specified the UAV that they felt would be best suited to fulfil their data requirements on such a large site. In this case it was a fixed wing senseFly eBee Plus RTK with Pix4D processing software. This decision was based on the eBee's survey grade accuracy, its long flight times and battery life which would facilitate flying on such a large site and finally its ability to fly in winds of up to 40kmh, vital for a coastal location on the edge of the Irish Sea. Horizon Nuclear Power was also aware that the eBee Plus RTK had been used successfully on similar projects of this size.

> "Investing in an eBee Plus RTK has been like buying a business-in-a-box but it's good training and support that makes the whole thing work."
>
> **Geraint Thomas**
> **Panorama**

Geraint therefore contacted senseFly distributor, KOREC, who could not only supply an eBee Plus RTK at short notice but also organise a complete training package that would cover both product training and his CAA accreditation through its partner, The Drone Pilot Academy (DPA), a Civil Aviation Authority authorised training provider. A package of this sort meant that Geraint was looked after throughout the whole training process with just one point of

▲ On site, Geraint Thomas and KOREC



Time Line – Creating a successful aerial business in 8 weeks

Week 1	Purchase of senseFly eBee Plus RTK
Week 2	Three-day training course and exam for CAA accreditation with the DPA
Week 3	Practical with the DPA for CAA accreditation
	Additional DPS UAV surveyor's course
	One day of product training with KOREC
Week 5	First flights undertaken with guidance from KOREC CAA accredited UAV pilot
Week 7	CAA accreditation comes through
Week 8	Successful undertaking of flights and supply of high quality aerial imagery to client, Horizon Nuclear Power

contact at KOREC who set up all his training for him in the shortest time frame possible.

Following the purchase of his eBee on the Wednesday, Geraint was booked into the three-day accreditation course and exam on the following Wednesday and returned the next week for the practical which he also supplemented with a DPA UAV surveyor's one-day course. Finally, he had one day of KOREC product training.

Geraint explains, "The training process was thorough and I was rigorously prepared for the exam by the DPA. Every detail was covered and they also assisted with the production of my operations manual, double checking everything to ensure that it was spot on before submitting it on my behalf. To further my knowledge, I additionally attended the DPA's one-day UAV surveying course which was ideal for the applications I was planning to undertake and gave me a heads up on some of the issues I may come across. Finally, I had one day of eBee product training which KOREC tailored to my particular requirements and in fact I used it as a trouble shooting exercise to ensure that everything was in place for my first flight. The whole process was seamlessly organised and all the training was of excellent quality."

CAA accreditation is finalised 7 weeks after the exam is passed and during this time KOREC supported Geraint on his early flights with its own CAA accredited pilot.

First flights

The Wylfa Newydd development site covers 1500 acres with Geraint contracted to carry out quarterly surveys of the whole area moving to monthly flights when earthworks began. KOREC ensured that UAV experts was on hand to assist with everything from the flight planning (taking into account land access, weather conditions and any adjustments to the flight plan due to changes in take-off and landing points) to a CAA exemption license which was required for the site as well as supporting Geraint in the field for the two days of work.

On the first day ground control was established with KOREC's help using a Trimble R10 GNSS tying in to existing features such as the corner of road markings. Although Geraint had opted for an eBee Plus RTK, there are times when there is no mobile signal, especially in more remote areas, and therefore the Trimble VRS Now service (real-time correction service) can't be accessed. In these cases, the data needs to be post-processed back at the office.

Both flying days were wind free with perfect light which enabled Geraint to carry out his 12 planned flights of around 40 minutes duration as well as additional areas along coastal cliff edges which he thought he would have to leave until the summer. Every flight went to plan, even in the fading late-afternoon light.

As soon as the data was collected, Geraint loaded all the images in the Pix4D processing software and the resultant data was presented to the client's GIS team in two coordinate systems, all within 7 days of the flights. The deliverables included the dsm and orthoTiff contours.

Geraint found both the eMotion3 flight planning and Pix4D software easy to learn with all the features he required and none of the complications. However, it was the quality of the data supplied by the eBee which really stood out for him. He reports, "I knew there was a huge buzz about the data within hours of the files becoming available. Heads of department met for a working lunch to discuss the emerging possibilities and although the original request for the aerial surveys came from the GIS team, other departments, from design to archaeology to contracts, could also see huge value in it even referring to it as 'game changing data'!"

Geraint continues, "There's no doubt that news of these successful flights has spread beyond Horizon Nuclear Power and I'm already being approached by new clients. For me, investing in an eBee Plus RTK has been like buying a business-in-a-box but I can't state too strongly, it's good training and support that makes the whole thing work. Both the Drone Pilot Academy and KOREC have been exemplary in this. Within 2 months I've made a move from supplying my client with just site photography to supplying them with highly sophisticated UAV photogrammetry. There's no doubt that the learning curve has been steep but the potential is immense!"

Contact us:

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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