



The Environment Agency's Agile Development Aids Rapid Flood Defence Survey

Case Study: Environment Agency



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Alex Hincks, Senior Project Manager, Environment Agency

 **Industry** Government

 **Customer** Environment Agency

 **Challenge** Rapidly respond to a national emergency and create a solution to be used offline for detailed inspection.

 **Solution** Using VertiGIS Studio technology, formerly known as Geocortex, the Environment Agency and armed forces were able to complete two years' worth of inspections in just five weeks.

Key Benefits:

- Rapid, agile response from 1Spatial consultants
- Pilot-ready product developed within a week
- Innovative solution for offline, data-hungry, mobile tool

Verti**GIS** Studio™

Challenge

Winter 2013/2014 saw the wettest January on record for the South of England and large areas of Britain were suffering the worst floods in living memory. In mid-February 2014, the government announced that military engineers would be deployed to assist the Environment Agency. 250 engineers from the navy, army, RAF and Royal Marines would conduct a “rapid inspection” of the nation’s 150,000 most critical flood defence assets to assess damage. These assets range from 15 – 20 kilometre long embankments to single sluice gates or outfalls. Defence Secretary Philip Hammond stated that, **“we’re going to try and do in five weeks what would be about a two-year programme of inspection.”**

The EA quickly needed to provide reliable, and easy to use, tools for the inspectors on the ground. With just one week before inspection was to start, the EA set up two work streams. The first was tasked with redeploying existing tools and bending them to the task at hand. A second stream was challenged to **“improve considerably on what was immediately available; to provide better mapping, better tools and slicker, quicker processes,”** as the EA’s Senior Project Manager Alex Hincks puts it. Alex was keen to combine the Environment Agency’s immediate tactical need with a longer-term strategic vision.

Alex called 1Spatial who had recently worked with the EA developing their in-house EasiMap application. Alex wanted to develop a mobile version of this to run on the iPads used by the EA’s field staff and by the military engineers working on the Rapid Inspection project. With the inspection commencing in one week, time was critical. As Alex told 1Spatial on the call, **“We’ve got a week to build something. What can we do?”**

“We’re going to try and do in five weeks what would be about a two-year programme of inspection”

- Philip Hammond, Defence Secretary

The Solution

1Spatial immediately despatched one of their leading experts, Alan Howie, who flew from Glasgow to the Environment Agency’s Bridgwater, Somerset office on Sunday. Alex explains, “The response from 1Spatial was amazing. Alan came down over the weekend and was there, ready to start, on Monday morning. He dived into work and we were demoing stuff within a matter of hours.

“We had a number of significant problems

to overcome. The application needed to work offline in areas with little or no 3G coverage.” Alex continues, **“We needed to get the right level of detail for offline maps so we could zoom into the detail on the ground – buildings, roads and the exact location of our assets in relation to those – but we needed to break gigabytes of data into packages small enough to load quickly and easily onto the iPads.”**

The solution needed to integrate with the EA survey tool being developed in parallel by another team. It also needed to perform with adequate response times, even when working offline. In addition, the solution had to be easy to use and quick to learn.

Alan and 1Spatial reviewed what was required and recommended combining 1Spatial consultancy with a VertiGIS Studio, formerly Geocortex, software offering to deliver the solution for the EA. 1Spatial is the sole UK distributor for VertiGIS Studio technology and has a strong relationship with its producer, VertiGIS.

Alex’s team and 1Spatial determined that the base map data could be broken down into 16 blocks each representing one of the EA’s administrative areas. Each block was 6-7 gigabytes in size. This data block could be pre-loaded onto each iPad – using a cable and an Apple iTunes account – and then overlaid with the EA’s asset data.

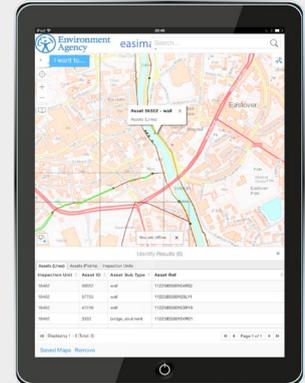
In online mode, users had full access to all of the asset data across the country. For offline operation, the team developed an innovative solution to cache data for three to five “inspection units” (each of 5 to 50 individual assets) within the VertiGIS Studio software. This cache was more than adequate for a week of surveying and could be refreshed whenever the iPad came back within 3G or wireless coverage.

During inspections, the geo-location solution interacted with the EA’s asset survey application to support the Rapid Inspection project with detailed and accurate geographical data for every asset. Clicking a button within the survey application opened the mapping solution, zoomed in and highlighted the location of the asset on the map. Alex’s team had the solution ready to pilot within a week.

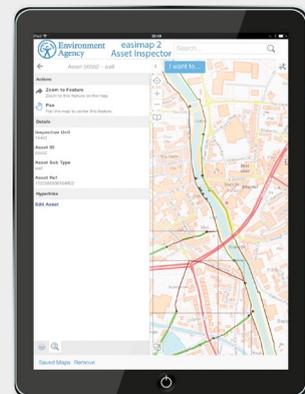
Alex’s approach paid off. **“We wanted to build very quickly and in an agile manner a solution that would effectively be a proof-of-concept version of a strategic tool for the EA,”** he explains. The Environment Agency is now considering whether to further refine the mobile

solution to become a strategic mapping solution within its core DMMI (Data Mapping, Modelling and Information) project.

Says Alex, **“The feedback we’ve had from the business – from management and from engineers on the ground – has been amazing, really positive. We achieved a huge amount in a very, very short space of time.”**



While out in the field, three types of flood defences for that area have been found and are shown in a tabular form at the bottom of the screen.



By selecting one of the assets more information can be displayed and a hyperlink is offered to take the field engineer to a companion app that allows full asset management of the selected wall.

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