

# Case study: Wardell Armstrong International

From Earthwise

[Jump to navigation](#) [Jump to search](#)

[File:Wardell topbanner.jpg](#)

---

## Project Partner

Wardell Armstrong International are a multidisciplinary Engineering, Environmental and Mining Consultancy that work both in the UK and overseas. Wardell Armstrong have extensive experience of planning, design, implementation and management using the latest technology and software across several areas which include but are not exclusive of:

- Minerals and Mining (Exploration, Mine Lifecycle, Environmental Impact)
- Civil and Structural Engineering (e.g. Highway Design, Flood Risk, Demolition)
- Energy and Climate (e.g. Wind and Solar Renewable Energy, Carbon Capture and Storage)
- Environment (e.g. Air Quality, Contaminated Land, Ecology)
- Ground and Environmental Engineering (e.g. Site Investigation, Mine Subsidence)
- Utilities and Infrastructure (e.g. Domestic Energy, Rail, Road and Ports/Harbours)
- Property and Development (e.g. Residential, Industrial and Commercial Construction)

## Project Rationale

The mining cycle includes; exploration, evaluation, planning, construction, operation, closure and remediation. The management of the mining cycle can be augmented with high resolution datasets such as those collected by Tellus SW project. However, unless these datasets can be integrated in the mining cycle workflow and analysed, the true value of the data to the project is decreased. By integrating and interrogating the Tellus South West survey (Tellus SW) data with mine data within an appropriate Virtual Reality (VR) software such as GeoVisionary, the benefits to the mining sector can be evaluated.

Security of energy supply and reduction in carbon emissions is central to the UK Government's energy policy, as is maintaining a suitable mix of future energy resources including renewable energy technology. Wardell Armstrong provide renewable energy solutions across a wide range of areas including Wind and Solar. Prior to issuing of planning permission for the construction of wind or solar farms the sites need to be assessed. The costs of these assessments and the speed at which they can be completed could be reduced by incorporating the Tellus SW data within the workflow.

## Project Methodology

In both mining and renewable energy studies the integration and interrogation of multiple datasets including the Tellus SW data are important. In both cases the initial phase of the project was to incorporate the Tellus SW and Wardell Armstrong data within GeoVisionary. Training was provided to 4 members of staff at Wardell Armstrong's offices in Truro on how to import data and visualise it.

[File:Wardell fig1.jpg](#)

## Renewable Energy – Wind and Solar

The visual assessment of the impact to the landscape of potential solar or wind farms can be quickly visualized by incorporating models of wind turbines or solar panels with the Tellus SW LiDAR survey data. Once the model is complete the scene can be visualized from any angle due to the fact that the model is in a true 3D environment. Additionally the environmental conditions can be changed to reflect changes in solar angle expected at different times of the day and year.

## Exploration and Management – Mining

The management of the mining cycle can be augmented with the high resolution datasets as produced by the Tellus South West project and an appropriate Virtual Reality (VR) software such as GeoVisionary. The Tellus South West data as visualised in GIS and VR software can save resources, mitigate against potential hazards/dangers and provide a platform that allows the user of these systems to analyse relationships between 2D, 3D and 4D data. Not only have these VR systems significantly improved the understanding of geospatial data for geoscientists, these systems and types of data have played a pivotal role for communicating geospatial data to non-geoscientists, who tend to be the key stakeholders regarding the permissions needed to set up a mine.

[File:Wardellfig2.jpg](#)

The Tellus SW and mining data sets can be visualized within a VR system to help stakeholders understand the data and information provided to them in a regional and local context. In mining terms, this may allay fears on the potential impact on the environment and could speed up the issuing of planning permission and the development of a mine. The Tellus SW data can provide contextual landscape information to enhance the data acquired by Wardell Armstrong International and provide a greater understanding of the relationship between the local data and the broader landscape.

## Conclusions and Future Opportunities

The accessibility of the Tellus SW data has enabled new business opportunities and research avenues to be explored. The Tellus SW LiDAR data could be used to complete a 'weights of evidence study' to identify potential areas of mineral prospectivity and to rank the identified targets for allocation of resources and budgets. The mining cycle generates large quantities of data that can be hard to manage and visualise. The Tellus SW data allows the mine data to be incorporated into the wider context and when integrated with the mine cycle data in a VR package can enhance the data's value. The visualisation of the data in a format that is understandable by the public can be used to alleviate public concerns regarding future operations and can demonstrate the work undertaken during the mining operation including environmental monitoring.

The Tellus SW LiDAR data could be used to do a rapid solar budget assessment across South West England. The consistent high resolution data could be used to identify areas of good solar potential and highlight areas where there is likely to be public concerns. A rapid assessment of visual impact of wind turbines can be achieved prior to detailed application eliminating sites prior to application and minimising the number inappropriate applications.

[File:Logos bottom.jpg](#)

Retrieved from

'[http://earthwise.bgs.ac.uk/index.php?title=Case\\_study:\\_Wardell\\_Armstrong\\_International&oldid=52449](http://earthwise.bgs.ac.uk/index.php?title=Case_study:_Wardell_Armstrong_International&oldid=52449)'

## Categories:

- [Pages with broken file links](#)
- [Tellus How](#)

## Navigation menu

### Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

### Namespaces

- [Page](#)
- [Discussion](#)

### Variants

### Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

### More

### Search

### Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

## Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 26 July 2021, at 15:35.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

