

Bentley[®]
Advancing Infrastructure



Project Summary

Organization:
Atkins

Solution:
Geotechnical
Information Management

Location:
United Kingdom

Project Objectives:

- To establish a single source of truth by integrating all geotechnical data with the geospatial environment.
- To optimize a digital workflow through an automatic geotechnical data environment link.
- To ensure collaboration and access to geotechnical data by all stakeholders.

Project Playbook:
OpenGround[®] Cloud

Fast Facts

- OpenGround Cloud enables the analysis of any type of geotechnical data.
- Using OpenGround Cloud, Atkins can automatically export and sync geotechnical data with a GIS.
- The application maintains consistent geotechnical data along the digital workflow.

ROI

- By using OpenGround Cloud, Atkins is able to lower project and geotechnical risks.
- OpenGround Cloud improves tender design to consider a wider range of site properties, reducing ground-related risk.
- Ground investigations are planned more effectively, reducing costs.

Atkins Establishes a Detailed Geographic Information System Using Innovative Technology

OpenGround Cloud Enables Best Practices in Geotechnical Information Management and Visualization to Collaborate Effectively

The Innovator

Atkins is a multinational engineering, design, planning, project management, and consulting services company headquartered in London, UK. Part of the SNC-Lavalin Group, Atkins is one of the world's most respected design, engineering, and project management consultancies. Atkins is renowned for the breadth and depth of its services ranging from civil and construction to aerospace.

In 2016, Atkins was the UK's largest engineering consultancy and the world's 11th largest design firm. It employed approximately 18,000 people in 300 offices across 29 countries, with projects in over 150 countries. Its motto is "Plan, Design, Enable."

Atkins is also a leading international provider of geotechnical consultancy services with a geotechnical team of more than 300 professionals. Atkins has an impressive portfolio of prestigious and diverse geotechnical projects worldwide along its three geotechnical divisions: tunneling and underground space, energy geotechnics and specialist services, and infrastructure geotechnics.

The Challenge

For many of its projects, Atkins' geotechnical team uses multiple technologies and applications that need to work together. On these projects, Atkins also needs to provide timely, detailed, and engaging analysis and deliverables to its clients. Therefore, geotechnical technology and data integration, as well as proper project workflows, are of utmost importance to achieve efficiency and quality of service.

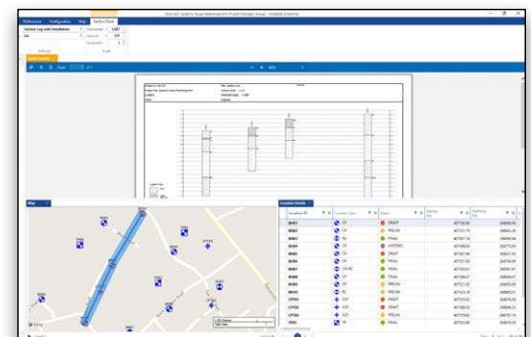
To assess ground conditions, Atkins uses Bentley's OpenGround Cloud and establishes a detailed geographic information system using QGIS or ArcGIS. Atkins manually exports the geotechnical project data from OpenGround Cloud and imports it into QGIS or ArcGIS in the form of multiple CSV files.

The process is time consuming and error-prone, especially when used across different practices.

The Approach

Any new technological solution used to address these challenges has to allow for seamless integration and interoperability of the geotechnical project data with external applications. It should also allow for a best-in-class information management workflow along multiple organizations, geographies, and specialists. The solution should also provide consistent data management and flexible reporting capabilities.

Lastly, the solution must incorporate best international practices in geotechnical project management and improve the data and process workflow.



Geotechnical data in OpenGround Cloud.

The Solution

Atkins' geotechnical team previously used OpenGround Cloud and its powerful web API functionality to query data at various scales (e.g. project, regional, and national). Therefore, it was the natural solution to look at the business problem using Bentley's OpenGround Cloud technology.

To solve the outlined business challenge, Atkins' geotechnical team needed to specify a project in the cloud that is automatically linked via the API and ingested into an existing GIS system. Then, the user simply needs to login within QGIS or ArcGIS to perform GIS analysis of the geotechnical project data. This data will be available and can be robustly queried, assessed, and enriched collaboratively across multiple practices with existing GIS processes and services.

“From [a] risk management perspective, we are now able to more easily identify [the] gaps in data, to highlight risk items and, if required, assist in the planning of targeted ground investigations.”

*– Richard O’Brien,
Principal Process Engineer,
Atkins*

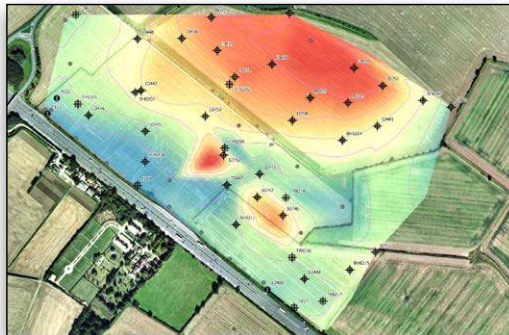
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Integration with other Bentley geotechnical BIM technologies like PLAXIS® allows for similarly integrated connections via the PLAXIS API to automatically import borehole data ahead of numerical analysis. Data can also be written to the OpenGround Cloud where applicable.

A simple desktop illustration below demonstrates that this integration allows for typical site data to be enriched with further GIS functionalities and layers.



OpenGround Cloud geotechnical data is extracted from a site in a GIS environment.

The Results

Compiling the geotechnical data into the OpenGround Cloud common data environment gave the Atkins’ team the ability to collaborate across multidiscipline teams at a project level.

Dynamically linking OpenGround Cloud to their existing GIS teams using the Web API means that the geotechnical engineers have an accessible database for work-in-progress GIS mapping together with geotechnical constraints from other project teams such as ecology, heritage, and contaminated land.

This approach allows Atkins’ geotechnical engineers to use best practices in GIS data management and visualization and collaborate more effectively across the organization and its partners.

Additionally, the ability to rapidly query and assess GIS enhanced geotechnical data at various scales across multiple projects has other benefits.

“From the tender process, when local site data availability is limited, through to detailed design, we are now able to undertake data-driven assessments to aid [in our] decision-making.”

O’Brien added, “[OpenGround Cloud gives us] the ability to determine and cross-reference the organization’s geotechnical parameters and correlations with those available from literature sources. Tender design is made more efficient and [we] can consider a wider range of site properties leading to reductions in geotechnical risk. Ground investigations [are] planned more effectively taking into consideration multidiscipline and multiproject data leading to reduced costs. And, detailed designs are delivered from a more complete perspective, which leads to greater value for the client.”