



CASE STUDY

SUBSTATION CONSTRUCTION ENVIRONMENTAL SUPPORT

CLIENT: CONFIDENTIAL

LOCATION: UK

Highlights:

- Environmental Management & EnCoW
- CEMP Development & Compliance
- Ecological Mitigation & Licensing
- Geo-Environmental Assessment



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CONTEXT

Arthian supported a large, multi-phase construction project involving the development of a high voltage electricity substation and associated overhead line reinforcement along the east coast of Scotland.

The commission spanned a five-year period, with Arthian embedded within the delivery team, undertaking the roles of Environmental Manager, Ecological Advisor, and Environmental Clerk of Works (EnCoW) on behalf of the Principal Contractor.



THE CHALLENGE

The project presented a range of environmental constraints and operational risks typical of large-scale infrastructure development.

Ecological sensitivities included the presence of a badger sett within 30 metres of the construction area, requiring careful management and compliance with protected species legislation. At the same time, extensive earthworks combined with periods of heavy rainfall created a risk of sediment-laden surface water entering nearby watercourses.

In addition, the site's ongoing use as an electricity substation introduced complexities associated with hydrocarbon contamination. Contaminated groundwater and surface water were encountered during drainage and excavation works, particularly during wet weather, requiring investigation and management to minimise environmental impact and programme disruption.

THE SOLUTION

Arthian provided a coordinated environmental management approach throughout the project lifecycle, embedding practical controls and ensuring alignment with regulatory requirements.

Construction Environmental Management Plans (CEMPs) were developed for each phase of the works and regularly updated to reflect evolving site conditions and construction activities, maintaining compliance with the Planning Decision Notice.

Targeted ecological mitigation was implemented, including the establishment of a temporary exclusion zone around the badger sett and the successful application for a NatureScot licence to permit controlled disturbance.

To manage surface water risks, Arthian specified and oversaw the installation of appropriate mitigation measures, including check dams, straw bales, sedi-mats and silt fences, alongside the construction of settlement ponds to manage runoff at source.

In response to hydrocarbon contamination, Arthian undertook a geo-environmental investigation programme. This included the installation of boreholes and the collection of soil and groundwater samples for chemical analysis, enabling a robust understanding of subsurface conditions and potential pollution sources.



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OUTCOMES AND VALUE

Arthian's proactive and embedded approach enabled effective environmental management across a complex, long-duration infrastructure project.

Ecological constraints were successfully managed in compliance with licensing requirements, while sediment control measures reduced the risk of pollution to adjacent watercourses during critical construction phases.

The geo-environmental investigation provided the client with a clear evidence base on subsurface conditions, supporting informed decision-making and the ongoing management of hydrocarbon contamination risks.

Overall, the project demonstrates the value of integrated environmental management in maintaining compliance, reducing environmental risk, and supporting efficient delivery on complex construction programmes.



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