

Case study

132kV UKPN Substation

Alan Wood & Partners were commissioned to provide civil, structural design for a new 132kV grid connection substation (currently under construction) for UK Power Networks (UKPN). The project required close coordination to meet UKPN's technical standards while addressing drainage, flood risk, and ground engineering challenges. Advanced modelling and design techniques were applied to deliver an efficient and resilient substation platform, ensuring long-term operational reliability.

Scope of Work

- **Topographical Survey:** Detailed site survey to capture existing levels and inform platform and drainage design.
- **Phase 2 Ground Investigation:** Boreholes, trial pits, and laboratory testing to determine soil properties and groundwater conditions.
- **Flood Risk Assessment & Drainage Design:** Assessment to confirm compliance with UKPN flood resilience requirements. Design of surface and foul water drainage systems for effective site water management.
- **Earthworks Design:** Cut-and-fill modelling using Autodesk Civil 3D to optimise platform formation and minimise material movement.
- **Foundation Design:** Engineered foundations for the UKPN control room, switchyard structures, and transformer bund.
- **Reinforcement Detailing:** Preparation of reinforcement schedules and earthworks specifications for structural integrity.
- **Switchyard Structures:** Detailed engineering for AIS steelwork and associated infrastructure within the switchyard.

Challenges

- Integration of drainage and earthworks within a constrained site footprint.
- Compliance with stringent UKPN technical standards.
- Optimisation of cut-and-fill to reduce environmental and cost impacts.

The project delivered a fully compliant, durable substation platform and associated infrastructure, meeting UKPN's operational and safety requirements while ensuring efficiency and resilience.



Location:
Palgrave, Diss



Client:
HVGS



Architect:
HVGS



Value:
£5m



Civil Engineering Structural Engineering Geotechnical and Geoenvironmental

Engineer/
Manage/
Deliver/