East Coast Mainline Power Supply Upgrade 1

Case Study: Power Supply Upgrade and Infrastructure Testing on the East Coast Main Line

Client: Network Rail (via Siemens)

Project Partner: WJ Project Services

Location: Wood Green, UK

Scope: System capacity upgrade, booster disconnection, return screen conductor installation, track and substation testing, and infrastructure commissioning

Project Overview

WJ Project Services supported Phase 1 of the East Coast Main Line Power Supply Upgrade (PSU1). The works increased supply capacity between Wood Green and Bawtry, reinforcing infrastructure to support rising traction demands and future rail enhancements.

Approach

The system was converted from a booster configuration to a booster-less classic arrangement. A new return screen conductor was installed, the existing return converted to aerial earth wire, and track bonding modified. Overhead line neutral sections were converted to overlaps, and route sections upgraded to auto-transformer format.

Commissioning & Training

Expired substations were replaced with structure-mounted outdoor systems and Siemens ASG25 modular substations. A new 400/25kV incoming supply was commissioned to strengthen the network. All testing and verification were completed prior to energisation.

Equipment

Siemens ASG25 air-insulated modular substations were installed, providing increased capacity, improved reliability, and modernised infrastructure.

Outcome

The project delivered upgraded and fully commissioned power infrastructure, increasing system capacity and supporting reliable long-term operation of the East Coast Main Line.