



CASE STUDY – CARSTAIRS MODERNISATION

CLIENT – SIEMENS MOBILITY LIMITED

LOCATION – CARSTAIRS JUNCTION

DURATION – 2 YEARS



CASE STUDY - CARSTAIRS MODERNISATION



Scope of Works

Carstairs Junction is located on the West Coast Mainline (WCM2), originally opened in 1848 and later electrified in 1974. It serves cross-border passenger and freight services, as well as cross-country services between Edinburgh and Carstairs via the Carstairs-Edinburgh (ECA) line.

The Junction is home to Carstairs Station and facilitates the splitting and joining of the overnight sleeper service between Glasgow/Edinburgh and London. Carstairs junction is also adjacent to the Carstairs Maintenance Delivery Unit (MDU), providing engineering access for machines and plant to the mainline.

The core scope of the Carstairs Modernisation Project includes the following:

Carstairs PSP

- The Carstairs Junction Power Supply Point (PSP) consists of a **15m, two-room container** housing **650V/400V distribution switchgear**.
- To supply the six number **650V feeders**, eight transformers were installed, providing two backup units for redundancy.
- The primary power source at the site is traction supply, supported by **twin 160kVA traction UPS units**, ensuring contingency in case of failure. The second UPS unit is housed in a separate **standalone container** to serve as an emergency power source in the event of a **catastrophic failure** in the main building.
- The PSP is monitored by a **Tri Controls system**, which includes the **Bender RS4 Tier I insulation monitoring and fault location system**—the first of its kind introduced to the rail network.
- A new **GRP housing** was installed for the **200kVA 25kV/400V ground-mounted auxiliary transformer**, which provides traction power.

CASE STUDY - CARSTAIRS MODERNISATION



Scope of Works (Cont'd)

Point Heating

- As part of the junction remodelling, multiple **point heating renewals and alterations** were carried out.
- Kent PHK installed **four PHCC cubicles**, along with associated track works and modifications to existing point heating and related power supplies. These renewals and alterations spanned the entire site footprint.

ASP Installation

- The project included the installation of **six ASP supply points**, one for each of the **650V feeders**.
- Each ASP was housed in a **GRP enclosure** and equipped with **KG Switchgear**.

DNO Cabinets

- A total of **eight DNO cabinets** were supplied for the project.
- These cabinets, provided by **KG Switchgear**, were a mix of **replacements for existing units** and **new installations** to enhance power supply across the network.

MOS Supplies

- Due to modifications and extensions to the **Overhead Line Equipment (OLE)** network, additional **MOS power supplies** were required.
- Kent PHK provided new **230V auxiliary supplies** for **24 MOS locations**, sourced from adjacent power sources.

Project In Numbers

- Cable - >10km
- Auxiliary/Principal Supply Points – 7 No.
- DNO Supplies – 8 No.
- Points Heating Installation to 24No New Point ends over Six sites.
- LV Supplies to 6 No. in total REB,s supplies and BS7671 Testing
- MOS supplies to 24 No. switches
- Traction Power Supply



CASE STUDY - CARSTAIRS MODERNISATION



Our Standards

At the core of our business is a strong commitment to sustainability and corporate social responsibility. This dedication was showcased through the completion of our purpose-built head office, which has been thoughtfully designed and constructed as a sustainable building for the future. From energy-efficient systems and environmentally friendly materials to waste reduction initiatives, every aspect of the office reflects our goal of minimizing environmental impact.

Beyond infrastructure, we are continuously working on innovative ways to reduce our carbon footprint across all areas of our operations. This includes adopting renewable energy sources, enhancing supply chain sustainability, and encouraging eco-conscious practices among employees.

Moreover, we believe that corporate responsibility extends beyond sustainability. Our employees actively engage in fundraising and volunteer initiatives, supporting a range of local and national charities. Through these efforts, we strive to make a positive and lasting impact—not only within our industry but also in the communities we serve.

Our Team

A core principle of our business is investing in the selection, development, and retention of a dedicated and highly skilled workforce. We actively support apprenticeships, providing opportunities for the next generation of professionals to gain hands-on experience and industry knowledge. Additionally, we are committed to fostering career growth within the company by offering continuous learning, professional development programs, and pathways for career advancement. By prioritizing our employees' growth, we cultivate a motivated, innovative, and future-ready workforce.

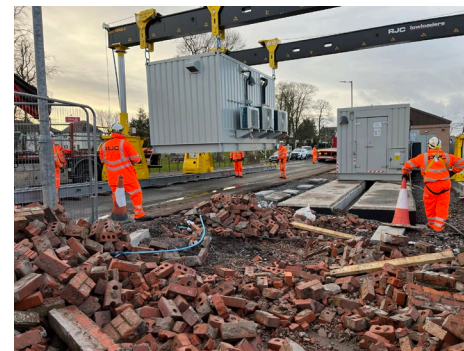


CASE STUDY - CARSTAIRS MODERNISATION



Outcome

- High-quality installation with market leading equipment and components.
- Robust enclosures with built in contingency to keep this busy junction running smoothly, no matter what gets thrown at it.
- Cabinets, enclosures and cubicles chosen and engineered to withstand anything the Scottish weather can through at it for the next 20+ years.
- The benefit the entire installation has been undertaken by engineers and staff that care about quality and first-class workmanship no matter what they are delivering whilst always following our ethos of **Right First Time**.



CONTACT US

Kent House, Lower Oakham Way, Mansfield, Nottinghamshire, NG18 5BY

————— **Tel: 01623 421 202** —————

6E Langlands Square, Kelvin South Business Park, East Kilbride, Glasgow, G75 0YY

————— **Tel: 01355 230 005** —————

