

Guston Rectifier Transformer Refurbishment



THE PROJECT

The 33kV, 2.5MW Hackbridge & Hewittic rectifier transformer, originally installed at Guston in 1959, required full refurbishment. Network Rail appointed AM1 Projects to manage the refurbishment works and reconnect the unit to the new 33kV switchboard.

Project Started

**Dec
2024**

Project Ended

**June
2025**

Client

**Network
Rail**

THE DELIVERABLES

- The existing 6,500 litres of insulating oil were fully drained from the transformer and replaced with purified insulating fluid to improve efficiency and extend operational life.
- The Buchholz relay, isolation valves, and all associated gaskets were renewed to ensure reliable fault detection and safe transformer operation.
- The anode cable bushings were replaced with new units to maintain high-voltage insulation integrity and compatibility with the upgraded system.
- A buried concrete duct block was installed to provide a safe and secure route for the new 33kV interconnector cables.
- The HV cable end box was removed and reinstated to install new bushings and gland plates, allowing connection of HV plug-in terminations to the disconnection chamber.
- AM1 managed all isolations, switching operations, and permits to ensure safe and compliant project delivery.
- All testing and commissioning were completed in-house, including insulation resistance, pressure, earth continuity, and functional checks.

CHALLENGES & SOLUTIONS

AM1 coordinated all site activities to minimise the hire duration of the 700-metre temporary access road installed across the adjacent field for the HV switchgear renewal. By completing the HV cable installation, testing, and commissioning in-house, the overall programme duration was reduced. As the project progressed, additional refurbishment requirements became apparent. AM1's detailed daily reporting enabled Network Rail to make timely and informed decisions, allowing effective management of the expanding project scope.

