

CASE STUDY



Project: Substation Civils
Location: Carpenders Park
Client: Network Rail
Value: £300k



Project Introduction

Coleman Rail were awarded a fully managed sub-contract covering all labour, plant and materials to complete railway civil works at Carpenders Park Substation. This project forms part of a LOCIP programme of 11kV and DC system upgrades to allow for the running of five car trains on the London Overground network. This meant that the 11kV substations that supply the power to the tracks require improvement works. One of those included a new 750V DC Track Paralleling Hut at Carpenders Park Substation, which provided this civils contract award to Coleman Rail.

This project was successfully completed on behalf of the client in accordance with both programme and cost envelopes and was delivered without incident and accident.

Project Deliverables

The rail civils scope of work included, but was not limited to the following:

- Site preparation works including vegetation clearance, surface strip and levelling of areas
- Erection of Vortok fencing to demarcate the working areas and create a green zone and creation of safe, segregation zones for any public interaction
- Installation of a crane mat layer, including all hardcore, levelling, laying stone and terram and all reinstatement on completion
- Design and installation of all temporary works for pads, fencing, formwork, supports and shoring required
- Excavation of the following:
 - > New trough routes
 - > Any buried ducts
 - > Joint chambers
 - > Inspection pits
 - > Foundations for TP hut module
 - > Foundations for TIS (track Isolation switches)
 - > Foundations for DNO cabinet
 - > Foundations for isolating transformer
 - > Foundations for fencing/gate posts and Armco barriers
 - > Drainage
 - > Locating existing services
 - > Locating existing earthing
 - > New substation earthing route

- > Trial pits
- > Reprofilng embankments
- Supply and Installation of all materials for the above list but not limited to sand beds, concrete, reinforcement, blinding, grout, bricks, blocks, mortar, 6N fill, hardcore, stone, terram and associated materials, including all plant required for delivery and installation
- Construction of formwork and supports
- Construction of infill panels to substation base
- Supply and installation of cable containment including lids, bends, angles and junction boxes
- Supply of materials and installation of access steps and guardrails/handrails
- Supply and installation of GRP gratings/mesh grids
- Supply and installation of permanent fencing
- Supply and installation of Armco barriers
- Supply and installation of compound area with edging comprising free draining aggregate, walking surface and membrane
- Expansion of hardstanding to RRAP
- Supply and install a personnel access walkway to the TP hut
- Supply and install marker tape to the 11kV cable
- Supply and install cable routes for LV and telecoms cables
- Removal of redundant cables and containment
- Removal of redundant trough routes
- Offloading electrical equipment
- Removal of the access gate and installation of palisade fencing including posts
- Removal of existing kerbs
- Removal of excavated arisings including tree stumps and remove off site
- Installation of white lining

Challenges and Solutions

- Due to the number of services in the proximity of the works, Coleman Rail undertook all necessary cable avoidance works, including obtaining and reviewing all buried service information and all mitigation. These measures remained in place throughout and resulted in no strikes or incidents during the works.
- Coleman Rail were challenged to provide value engineering throughout the works, this resulted in a timelier delivery of site works, with activities sequenced to provide concurrent delivery activities that did not compromise safety of the works
- By providing a fully project managed service, Coleman Rail were able to coordinate all materials and plant deliveries with the client
- Regular progress meetings and daily reporting enabled clear visibility of works throughout the project and all stakeholders to be kept fully informed
- All lifting activities were subject to a stringent permit to work system and all plant was checked daily, with test lifts undertaken prior to any work being undertaken

Benefits

- With all plant being owned and self-managed through Coleman Rail's sister company Coleman Plant Hire Ltd, the company was able to provide project surety to their client
- In house staff with the required rail civil engineering competence, enabled the project to be delivered to meet all programme and budget requirements
- Coleman Rail has a 24/7 on call service, which provided additional support to the site teams and allowed late changes to be absorbed, without impacting the project