



**CLIENT** – Giffen Group Ltd (on behalf of London Underground)

**PROJECT VALUE** – £1.5M

**DATE** – June 2015 to March 2016



**PROGRAMME DESCRIPTION:**

*As part of the Sub Surface Line ATC Signalling Upgrade Programme for London Underground, Giffen commissioned Poise as part of a Design and Build contract to undertake concept and detailed design for a number of new Signalling Equipment Rooms (SERs) and Electrical Switch Rooms (ESRs) across the SSL network in order to facilitate the signalling interlink and Transmission Based Train Control (TBTC) interface between different sections of the network back to the main Service Control Centre in Hammersmith.*

*We were appointed to undertake a number of designs as part of that programme. The sites included, Hammersmith, Finchley, Farringdon, Edgware and Acton.*

**PROJECT DESCRIPTION – Hammersmith and Finchley**

**Hammersmith:** The design work comprised a new build combined SER and ESR situated adjacent to the Hammersmith Control Centre.

**Finchley Road:** The design work comprised of converting a disused room to house SER and CER equipment and a new build ESR.

**Scope and Deliverables**

Poise undertook design of the **Civil and Structural** (pile design, foundations, superstructure, drainage and external CMS), **all Electrical** elements (LVAC disruption systems, cabled route management systems (CRMS), earthing and bonding), **Mechanical** and **Fire and Alarm** systems. Poise produced a detailed report, describing the philosophy of the design, as well as ‘for construction’ detailed drawings).

**Design works Description**

**Civil and Structural** – The design work involved; pile design pad foundations, new buildings (brick built and modular), walkways, drainage, permanent safety fencing, mounting fixing of all the proposed equipment, CRMS (including trackside CRMS) and cable bridges.

**Mechanical** – Required mechanical services such as comfort cooling unit, condenser unit, AC control panel, fire damper and damper control panel have been incorporated in the mechanical design.

**Fire** – For all new and modified rooms (SERs, ESR and CER) the design included new smoke detectors and fire alarms.

**Power** – The design included a connection from new LVAC switch board to a new ESR and SER Distribution Board (DB) and from a new DB to LV electrical services such as lighting, 230V sockets, 110V transformer/socket and mechanical services such as comfort cooling unit (indoor), condenser unit (outdoors), AC Control panel and fire damper panel.

Amtech calculation were used to determine the size and type of the proposed cable and size and type of the protection for all services.

**New lighting design** – Dialux calculation were completed for normal and emergency lighting.

**Earthing** – Design incorporated LUL's special earthing requirements for this protect, where ESR and SERs required separate single earth paths. GRP Uni-struts and GRP cable trays were used in the design to create a single earth path. Amtech calculations were used to figure out the size and type of the earth cables from all proposed DBs to all services.

**Communication** – Schematic drawing and cable termination schedule drawings.

The detailed design works were completed to successfully support the construction works and we provided technical advice and guidance to Giffen throughout the construction stage.