Cable Route Management

East Ham Station

CLIENT	CONTRACTOR	SUB-CONTRACTOR	INSTALLER	DESIGNER
TfL	Morgan Sindall	Hulkro Construction	Arbourtech	SRC

Requirement

In 2021 a wall at East Ham Station fell, taking with it the Cable Route Management System (CRMS) that had been mounted to it. Anchor Systems was asked to help design a permanent replacement route with additional cable capacity, to be installed in the safe cess alongside the running rail. This is the closest to the track Anchor Systems has ever installed its CRMS: at the nearest point, trains pass just 300mm from the edge of the hangers.

Site conditions were demanding. Works could only take place at night, with a live rail nearby, in amongst existing cables and the remains of the fallen wall. Beneath the ballast, an impenetrable layer about 1.5m down ruled out longer anchors, so a shorter foundation, installed at closer centres, was needed. The design also had to use fixings that would withstand constant vibration from passing trains.

Testing

Because the Anchor Screws had to be shorter than on any previous CRMS run, the cable posts needed much thicker sections to resist deflection. Suitability testing was therefore carried out on four occasions before the design was signed off, proving the foundations would perform under load.

Each foundation was designed for seven cable hangers carrying 184kg/m of cables, plus the self-weight of the system and accidental loading, giving a vertical design load of approximately 578kg. Horizontally, the CRMS was treated as a non-permeable barrier for wind loading due to its proximity to the track, and a 1kN accidental load was included for people climbing on the system. Each foundation was designed to resist approximately 500kg horizontally before a factor of safety was applied.

During installation, one in 25 foundations and cable posts were subjected to horizontal pull testing (acceptability testing) using Anchor Systems' own testing equipment.



Solution

Anchor Systems supplied AS-1395mm Anchor Screws (76.1 x 9.5mm) at 1.2m spacings, installed with a 400H Torque Head. Each supports a 1.640m cable post (150 x 75 PFC) fixed with M16 fixings, carrying 1.2m H-rails and a combination of 3-way heavy duty hangers at 2.4m spacings and 4-way steel hangers at 0.6m spacings. Everything is hot dip galvanised to BS EN ISO 1461 for long-term durability, and Limited Clearance brackets were added towards the end of the programme to suit the tight clearance to the track.

Working with Morgan Sindall, Hulkro Construction, designer SRC and approved installer Arbourtech, the system was designed, tested and installed in two to three months, including all testing. The result is a robust, permanent cable route with greater capacity than the one it replaced, built on foundations that avoided the need for excavation in a congested, live-rail environment.











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