

Permanent Way and Signalling

Crossrail Signalling

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Embracing collaboration for Crossrail West signalling enabling works

From the outset we recognised that successful completion of the Crossrail West Outer Signalling Renewal would require end-to-end teamwork to mitigate the risks associated with providing new cable routes, location cases, REB foundations, PSP foundations, UTX's, DNOs, signal structures, substructures, and ancillary works in association with migration of the existing signalling equipment over 17 miles of operational railway.

We opted to take on a wholly collaborative and open relationship with our customer and principal supply partners to ensure the timely, efficient and compliant delivery of every element of these highly inter-linked and complex works.



Creating innovative and sharing behaviours

The project to design and construct the civils works as part of the integration of Crossrail with existing operational railway infrastructure at its western extremity covered a 17 mile section of four track main line railway and several associated branch lines, between Hayes and Harlington Station and Twyford Station. This self-contained package of signalling works was required to migrate the existing signalling equipment for control by TVSC.

Recognising the importance of identifying and collaborating with our chosen supply partners was key to ensure the right skills and minds were working together to create opportunities and mitigate risks for our customer. By developing a fully collaborative relationship with our supply partner we created an environment for innovation and sharing of best practice to ensure the signalling scheme could progress as planned.



Joint teambuilding and workshop sessions were used to help embed the collaborative ethos, as well as aid the development of an agreed "Behaviours Charter." Our collaborative team worked together to set out required standards and behaviours to share knowledge and skills and create an environment for innovation and best practice to flourish.

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Interlocking elements requiring clear and honest communications

The installation of new and refurbishment of existing signalling, telecommunications, power and distribution infrastructure supports also included over 50km of new cable troughs and refurbishment of 13km of existing cable troughs. The final system and its migration will incorporate a new CBI interlocking system at TVSC with SSI locations at the trackside, a new re-configurable power supply system and transmission systems. This will replace the existing E10k signalling locations, power supply systems and transmission systems used currently.



To progress the "Approval in Principle" designs to final approved designs and construction drawings involved considerable topographical surveying works and three dimensional modelling. The detailed surveys and inspections included over 100 existing under track crossings and platform service routes. To avoid the possibility of substructure and service clashes a comprehensive integrated design system was used to accurately plot each and every element of the whole scheme, including other future planned infrastructure installations and developments.

With vast quantities of services and civils designs and construction information to be disseminated, along with personnel being deployed across 17 miles of operational railway, good communication was identified as a key issue. To deploy both trades and materials across the scheme required meticulous planning and clear communication to ensure the safe and successful completion of each interlocking element of the scheme.



Open and frank discussions at the early workshops highlighted that each member of the project team had to take personal responsibility to develop their own attitudes and behaviours in line with the Charter. This proved to be invaluable to ensure success for our customer. The commitment of the individual organisations to work closely is a great example of successful business relationships offering beneficial solutions.