Following previous successful contracts with Alstom, BCM delivered the most compelling offer for the civil engineering scope of the railway signalling renewal scheme for the Great Western Electrification project. The contract was let to BCM on a design and install basis, for the civil engineering elements of the project, covering a geographical work scope of nearly 300 miles of track between Paddington and Bristol stations, including some branch lines.

BCM utilised their offices in the South West and were able to mobilise effectively for the engineering scope of works to meet an incredibly challenging programme of works, with works being accurately planned for midweek days, midweek nights and during a series of planned weekend railway possessions.

Key milestones were agreed for delivery of both design and construction works, all culminating in a series of major rail signalling commissioning's.

Having an in-house design team to support their multi-disciplinary workforce including railway civil and structural engineering expertise, along with in house project and engineering management, allowed BCM to provide a timely delivery solution.
Project Deliverables

BCM designed, planned and delivered a fully managed project solution, effectively coordinating with all applicable stakeholders. The company achieved a fully compliant project in accordance with all relevant standards, against a scope of works that included:

- in excess of 1000 Signalling Equipment Units (SEU) including Loc suites, signal posts, signal gantries, signal post telephone (SPT), relocatable equipment building (REB), power supply points (PSP), advance warning systems (AWS), TPWS, axle counter and balise
- over 200 miles of trough route of which 60% was new installation and the remainder was refurbishment
- installation of signalling and power cables of the whole of route including tail cables.
- under track crossings (UTXs) along route
- drivers walkways to structures and posts.
- embankment stabilisation including kingpost and planks.
- level crossing installation and relocation of AT equipment at these locations.
- recoveries of redundant signalling equipment associated with the above works.

Challenges and Solutions

Due to the vast geographical area involved, the works were spread out across a huge number of locations throughout the 300 miles of track - many of these spaced at only 200m intervals. BCM sought to establish large site compounds at various strategic locations, by making local collaborative agreements with a number of landowners. In addition, BCM also set up a series of smaller node sites for localised deliveries and collections, reducing time loss and transportation implications on the environment.

BCM also faced significant issues with ground conditions, where traditional in-situ concrete foundations solutions would not suffice. Working with their in-house design team, BCM quickly developed a unique piled foundation solution. This not only had the effect of abating the sub-strata issues, it also managed to reduced the time on site by standardising the foundation design. This solution has since been adopted on many rail infrastructure projects throughout the UK.

Track access was also limited to weekend working in the main, which created programme congestion and incredibly high resource requirements for those weekend shifts. To combat this problem, BCM invested and developed a recruitment arm – Crewit Resourcing – to ensure both quantity and quality resources throughout the extent of the contract.

Aspiring to excellence in everything we do

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BCM is a transport infrastructure business that always focuses upon constructability. By directly employing their engineering, project management and construction management teams together with a design resource, they are able to provide a fast, workable solution in any given situation. In this instance, by establishing a standardised design and installation system that was then applicable to any given rail signalling installation, BCM were able to provide the best possible solution for their client.

Resignalling projects are time-critical with crucial milestones to be met. Experience is a key factor in delivering success. BCM brought their extensive knowledge and experience of rail-signalling infrastructure, which has been generated from a number of prestigious re-signalling schemes throughout the UK.

The ability to call on its in-house resourcing partner also allowed BCM to keep the project on track and deliver a huge quantum of work in very short timescales.

Their local cooperation with multiple stakeholders gave BCM the flexibility to determine logistics for transportation of materials and plant across the full extent of the works, allowing a high quality service to be delivered on time and to budget.