

## PROJECT EXPERIENCE



### North Downs Line Level Crossing Upgrades (Chilworth, Burrows Lane, Brook & Tangley)

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| Project:              | North Downs Line Level Crossing Upgrades (Chilworth, Burrows Lane, Brook & Tangley) |
| Client:               | AtkinsRealis                                                                        |
| Project Commencement: | February 2023                                                                       |
| Project Completion:   | October 2025                                                                        |

#### Introduction:

Our UK business, Global Rail Construction Limited (GRCL), has completed the North Downs Lines Level Crossing Upgrade. The design and build civil engineering scope covers 3 No Automatic Half Barrier (AHB) Level Crossings and 1 No Manually Controlled Obstacle Detected Barrier (MCB-CCTV) located within Network Rail's Wessex Route on behalf of Principal Contractor and Designer Atkins Realis.

The objective of this project was the mitigation of safety risks at these level crossings whilst taking into consideration the additional barrier down times (BDTs). It is the intention of the Wessex Route to reduce their overall risk at level crossings by upgrading AHB (Automated Half Barrier) Level Crossings to MCB-OD Mk11 (Manually Controlled Barrier – Obstacle Detection) Level Crossings at Burrows Lane and Brook. Chilworth & Tangley will be MCB-CCTV. The project was also required to relock the RSJ lines from Shalford station to Gomshall station with targeted renewal of trackside equipment. This will unlock application of 35mph differential speed across the scheme area and provide signal spacing to permit future 75mph line speed enhancement for the RSJ lines.

The AHB crossing at Chilworth and AHBC Crossing type at Burrows Lane, Brook and Tangley involved working in conjunction with multiple stakeholders and third parties including Network Rail, Train Operators, private residents/landowners as well as Highways Authorities

This significant interface was crucial to the success of these works with 3rd parties and members of the public at the Stations and Level Crossings communicated with to avoid conflict with access to Stations or use of the level crossings by the public, emergency services, Network Rail staff or the Train Operator's staff. Advance notice and liaison with all affected parties was required with staff signing in/out of the Stations/Depots as required by local rules/arrangements.

GRCL also ensured the safe management and maintenance of access to each worksite and full reinstatement and improvement as required of all boundary and entry points on completion, successfully maintaining safe means of access onto the site during works in such a manner so as to avoid trespass by either animals or people onto Network Rail Controlled Infrastructure.

The project team were responsible for taking due cognisance of the topography and geology of each worksite. The work areas were carefully examined in advance of any material deliveries/construction, to determine slope gradient, ground/underfoot conditions, general terrain and likely underfoot conditions. Slopes steeper than 25° were formally risk assessed by GRCL and Working at Height controls were adopted as determined by the risk assessment, as were the effects of weather through daily monitoring.

The work areas required careful planning due to limited clearances/close proximity to the track/this involved considerate booking of Line Blockages and installation of Vortok safety fencing as applicable in advance of planned construction.

Buried and surface cabling/trough/duct routes existed throughout the geographical limits of the sites including buried services within the public highway at the Level Crossings. Full surveys were undertaken to establish positions, levels and details of surface cable route(s), buried cable route(s) and cable pits in or adjacent to the proposed work areas by means of compliant CAT scans and hand dug trial pits/trenches - carefully excavated and backfilled. The method of working and control measures required when working adjacent to/above HV cable routes required GRCL to complete High Voltage (HV) Assessments to determine protection requirements, which were conducted under the supervision of an HV Competent Person.

Ecological considerations were managed through the requirements of an Environment and Social Management Plan, providing the Preliminary Ecological Constraints Report and the Precautionary Methods of Working throughout the project lifecycle.

From the outset, GRCL was provided with a number of sectional completion dates for elemental completion. To facilitate construction, some elements were required to be fully/partially constructed earlier which were given due consideration in the construction methodologies and planning for the works. For concrete elements, curing time(s) to gain the required compressive strength was crucial, along with timely provision of the required Assurance documentation in order to qualify for handover. To support this, GRCL also prudently procured and delivered materials ahead of the AFC issue date(s) based upon preliminary designs. Additionally, due to certain programme constraints and the necessity to undertake works in certain track possessions/highway closures, GRCL worked with Atkins to provide AFC design dates to support sectional completion and prepared and submitted a detailed design and construction programme, which included the adherence to installation of certain items of equipment on the constructed works and the installation of route cables to deliver timely commissioning of the project and its phasing.

Overall, this project demonstrates GRCL's ability to manage complex rail infrastructure upgrades under challenging conditions, ensuring safety, stakeholder engagement, and programme adherence.

### Scope of Works:

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The following relate specifically to GRCL's fully managed and assured Civil Engineering Construction works at 4No Level Crossings and covering 16No signals, which were completed and commissioned in accordance with the Construction (Design and Management) Regulations 2015, and associated railway Approved Code of Practice:

- Mobilisation and site set-up including security, welfare, waste and facilities management
- Project management, site supervision and labour resource
- Foundation and structural permanent works design including CRE's
- UPS Design
- Temporary works design
- Track access planning and management including possession/isolation staff, line blocking and associated equipment
- ALO management
- All material supply (except any free-issue materials) and delivery to point of construction
- All plant supply (except any free-issue plant) and delivery to point of construction
- Site clearance and waste recovery - on-going throughout construction and upon completion
- Vegetation clearance
- All civil engineering construction works including piling, RC bases, retaining structures, hardstanding's, cable routes, resurfacing and footway construction, fencing, barriers and signage
- Traffic and pedestrian management

### Challenges:

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- Complex stakeholder interface: Network Rail, train operators, local authorities, private landowners
- Limited clearances near tracks requiring careful planning and Vortok safety fencing
- Buried HV cable routes necessitating CAT scans, trial pits, and HV protection assessments
- Topographical constraints: Slopes >25° required formal risk assessments and working-at-height controls
- Programme constraints: Sectional completion dates and curing times for concrete demanded proactive material procurement and detailed scheduling

### Solutions:

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- Advanced liaison with stakeholders and public to avoid conflicts
- Daily monitoring of weather and ground conditions
- Early procurement of materials based on preliminary designs
- Detailed design and construction programme aligned with AFC design dates
- Implementation of Environment and Social Management Plan for ecological compliance

### Outcomes:

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- Successful upgrade of level crossings to safer configurations
- Improved operational efficiency and readiness for future speed enhancements
- Full reinstatement and improvement of access points post-completion
- Compliance with CDM Regulations 2015 and Network Rail standards