

Railway Risk

Accessing Land for Development by SEGRO

OSBORNE

"It's more than a bridge – it's a demonstration of our commitment to continuing to make the Trading Estate the best location with the best infrastructure for current and future customers. It will also play a huge part in attracting the inward investment Slough needs to grow its economy and maintain its status as a world-class place to do business."

SEGRO's Business Unit Director for the Thames Valley, Gareth Osborn

PROJECT	Leigh Road Bridge
CUSTOMER	SEGRO
LOCATION	Slough Trading Estate
CONTRACT	Design & Build NEC3 Option A
VALUE	£7.5M

Issue

Expansion of the estate would maximise SEGRO's revenue from their property assets, create sustainable economic growth and provide long term employment opportunities for the local Slough and surrounding communities.

The scarcity of rail closure opportunities and associated high costs of closing such a major railway artery to construct a crossing at this location was a major risk to SEGRO's planned investment programme.

Solutions

SEGRO took the critical decision and made an early contractor appointment with Osborne. The collaborative team then went to work to identify the programme risks and consider the wider possibilities, methods and solutions that most suited to this location.

The concept design was a traditional steel arch bridge. We recognized the proposal carried high risk of delay from Network Rail's stringent approval process, adverse weather during installation and cancellation of rail possessions on this busy West Coast Mainline. Challenging it in collaboration with our

designers we presented two innovative alternatives that significantly reduced SEGRO's risk and provided a more sustainable whole life solution to satisfy Network Rail.

The cutting edge solution to launch a steel Through Girder Deck bridge over the railway using self-propelled transporters was selected. This option significantly reduced risk, as the 1000T structure was steered into position over the railway without reliance on cranes and in a very short 5 hour rail closure.

Once the temporary steel cantilever 'nose' section had spanned the railway the whole structure was slid into position during normal train operations, greatly reducing rail operational risk.

At 1000 Tonne, it was the biggest launch ever by a wheeled vehicle in the UK and across one of the busiest sections of railway into London. Safety and programme management were critical to maintaining organizational reputations.

Launch risk for the 90m long structure was actively controlled by incorporating learning from a smaller launch, constructing a scale model, a 3D digital model to verify logistics along with a full scale advance test launch. As a result the 5 hour launch possession went exactly to plan!

Overall the design solution provided the best Capex and Opex solution. By specifying a 'U' shape bridge constructed in weathering steel we eliminated the need for future painting and contained the post launch finishing works within the structure. In addition we placed the rail abutments outside the rail boundary to mitigate access risk for future inspection and maintenance. These decisions were critical to gaining Network Rail design approval and gave SEGRO the best whole life option to access the Slough Trading Estate.

Outcome

This technically innovative and challenging solution fully addressed the method and commercial related risks, satisfying the many stakeholders, particularly Network Rail, and critically at a cost £265,000 below the original concept design.

