Best practice: Horsham Reducing Carbon Emissions through Design

Background

BCS Design was contracted by Carillion to undertake the detailed design for Horsham field sidings and Maintenance Delivery Unit (MDU) facilities. The project involved replacing and remodelling of the existing sidings and installation of a new modular MDU building.

BCS set out to investigate the cradle to gate carbon emissions of materials required for the project and to identify opportunities where this could be reduced.

The outline design impacts for material carbon emissions were calculated prior to design start and the designers proactively reduced carbon emissions by designing materials out or using lower carbon alternatives where possible.

The majority of carbon savings resulted from a reduction of fill materials and railway ballast by reducing the vertical alignment of the sidings. The final outline and detailed design comparisons showed a reduction in cradle to gate material carbon emissions of 146 tonnes CO2eq.

Benefits

By quantifying materials and carbon impacts of the outline design options (at the start) it was possible to give the relevant discipline engineers

specific figures and targets relating to their detailed design remit which empowered them to make engineering decisions to reduce embedded carbon emissions from material use

The process of quantifying and calculating embedded carbon emissions of the status quo (outline design stage) and subsequently being able to provide meaningful figures and reduction targets for engineers have proved successful and has already been employed and further developed on similar projects

It is hoped that this technique would be employed even earlier in the project development process especially during the option development and selection stages

Meeting TLP objectives & targets:

The project was able to meet the following objective of the Thameslink Sustainability Strategy as a result of BCS's design:

- 15a- minimise the levels of carbon generated by the project

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