

Project case study

# Concrete maturity monitoring used to enable fast-track bridge repairs in Merseyside

## Product

Low carbon concrete using SmartRock digital concrete maturity monitoring system

## Volume

100 cubic metres

## Client

Merseyrail

## Main Contractor

Buckingham Group Contracting Ltd

## Overview

Heidelberg Materials supplied low carbon concrete with SmartRock maturity sensors to support track reinstatement on a railway bridge in Kirkby. The sensors provided real-time strength data, which allowed rail operations to confidently resume.



## Project description

Using our SmartRock concrete maturity sensors proved the strength gain of a slab for a new railway bridge allowing it to reopen for trains on time.

Over 100m<sup>3</sup> of our low carbon concrete incorporating our SmartRock concrete maturity sensors was supplied to Buckingham Group Contracting Ltd (BGCL) for track reinstatement on an existing railway bridge in Kirkby, Merseyside.

The bridge upgrade was part of an £80 million scheme that involved the creation of a new station (Headbolt Lane) that extends the Merseyrail network and link Kirkby with Northern Rail services from Manchester and Wigan.

Heidelberg Materials stepped in to fulfil the contract following the previous concrete supplier pulling out of the proposed works due to not having confidence in achieving the early strength criteria.

SmartRock sensors, coupled with lab calibrations of each concrete mix, give customers live data on both the

concrete's temperature and strength gain direct to their mobile phone.

BGCL had strength requirements at 5 and 30 hours and just a four-day window in which to take the track, ballast and membrane out before concreting blinding (37.5m<sup>3</sup>) and a slab (68.5m<sup>3</sup>), re-waterproofing, adding new ballast and reinstating the track with minimum disruption to local residents and commuters.

The digital SmartRock system provided real-time data demonstrating the in situ strength gain of the concrete, giving the confidence to progress with subsequent works to meet the tight deadline.

Jonathan Moran, BGCL senior project manager, said: "The concrete mix developed reached our required strength gains of 30N/mm<sup>2</sup> within 30 hours very easily. This meant that our track slab installation during a railway closure went smoothly. The sensors proved what strength we gained so we were able to successfully load the slab and open for running of trains on time."