



Installation of Tilt and Displacement Sensors on a Bridge

Case Study

DYWIDAG was contacted by Story Contracting to ascertain the bridge's performance under load / when trains pass over the top of the structure. It was important to accurately identify the bridge's performance under load, as well as develop a comprehensive understanding of its current state.

PRODUCTS

Tilt sensors
Displacement sensors
Wireless Logger
Solar Panels

LOCATION

United Kingdom

SCOPE

Design, Supply, Installation,
Technical Support, Rental of
Equipment

OWNER

Network Rail

CONTRACTOR

Story Contracting

ENGINEER

James Barron & Jayson Pape-
Jones

Context

The BEA/8 Bridge Withybed Lane, Alvechurch, Birmingham is a minor waterways place on the Worcester and Birmingham Canal, between Hanbury Junction and King's Norton Junction. It was restored and re-opened in July 2011. The bridge itself dates back to 1858 and throughout the years has undergone a number of repairs.

Solution

DYWIDAG's monitoring system is designed to provide monitoring data, which will be interrogated to help identify the correct course of action, including any repairs required to the structure. The monitoring system measures performance, along with other critical data, and can help provide correct - and cost effective - solutions for asset managers and structural engineers. The benefit of using real time data is that it provides 24/7 monitoring, thus reducing the amount of time and labour required on site to monitor the structures performance. It can be used to identify and develop the materials and methods required for repair and maintenance.

Whilst under possession, the installation of displacement and tilt sensors to the underside of the bridge arch was carried out by DYWIDAG, as well as train sensors on the track under possession. Static and dynamic monitoring systems were also deployed, with wireless loggers and solar panels. The system was linked to DYWIDAG's online visual data platform - Infrastructure Intelligence – in order that the contractor could view in real-time how the structure was reacting.

An additional benefit of this installation is that it provides alarms and alerts directly to the client, should any serious adverse effects be experienced by the structure. This enables the client to deploy to site, should a certain threshold be detected - within the set parameters - by the installed remote monitoring system.

