“I’d like to give thanks to passengers and the local community for their patience over the last nine days as we worked around the clock to complete the installations as part of our Railway Upgrade Plan. The new flood resilience measures will mean we can provide a better, more reliable railway for passengers travelling through the southwest.”

Rebecca Wells
Senior Project Manager
Network Rails

octavius

Case Study

River Axe Flood Alleviation

Modular solution for passengers and the community

PROJECT	River Axe Flood Alleviation
CUSTOMER	Network Rail
LOCATION	Wessex Route, Devon
CONTRACT	IP Southern Framework
COMPLETION	2018

hello@octaviusinfrastructure.co.uk
octaviusinfrastructure.co.uk

Need

The frequency and intensity of rainfall events is increasing. Significant flooding on the River Axe, near Axminster, in Devon 'washed out' a section of the railway embankment. The immediate impact to passengers and freight was several days of track closure for emergency repairs.

Network Rail sought a permanent flood alleviation solution at two locations, Broom Lane, and Axe Farm, to safeguard this part of the Salisbury to Exeter route.

The challenge was implementing a sustainable solution that met the diverse needs of all parties from funders and regulators to local authorities, train operators, rail users, and the local rural community.

Added to this, the structure had to be delivered in a scheduled 9-day rail closure in a SSSI/SAC in a rural location with difficult village access.

Solution

Design and delivery came under the 'One Team Wessex' collaboration on the Network Rail's IP Southern Multi-functional Framework. From the outset it was critical to understand the expectations and concerns of all the impacted parties. We had to consider sustainability, ease and predictability of transportation and installation and community improvements.

Off-site solution

Selection of a pre-cast concrete culvert embankment instead of a piped or bridge option was an important decision. The predictability of the manufacturing process de-risked the scheduled 9-day rail closure.

- Delivery of the 46 (550T) pre-cast units was controlled to reduce disruption on the narrow rural roads and through Hawkchurch village.
- There was no requirement for site pre-assembly in the SSI/SAC.
- It was the lowest embodied carbon.
- The factory quality control reduced future maintenance.
- Installation of the units was predictable resulting in hand back 9 hours early.

Local Engagement Reduced Disruption

During the 9-day closure, 9000 tonnes of embankment spoil was removed, and the units, cranes and equipment delivered. The narrow rural roads were a challenge and following early community consultation we:

- Re-routed 50% of delivery vehicles away from the village and restricted village movements to just 4 HGVs per day outside of school drop off/pick up.
- Arranged for 9000 tonnes of spoil to be used for farm improvements.
- Collaborated with the council to install a temporary re-useable bridge for our work, which helped the farming community and diverted traffic from the local village.

Adding Social Value

The health and wellbeing of our people was paramount, and it was decided to house everyone in Hawkchurch. This reduced travel, reduced carbon, and put money into the local economy. It also gave the team an opportunity to integrate into the community for 8 months. As a result, they supported the local fete and built a play area for the school.

Outcome

By focusing on sustainable objectives from the outset there were no environmental incidents and the project delivered benefits to the rural economy, the school, and the community of Hawkchurch.

Meticulous planning ensured the 9-day scheduled track closure re-opened 9 hours early enabling normal passenger services to resume and saving cost.

The new flood resilience measures have improved rail service reliability for passengers between Salisbury, Exeter and the southwest.