

A spokesman for the Highways Agency said, "Due to unexpected complications completion of our major programme of maintenance and improvements to Breedy Butts and Tarngate bridges along the A585 has been delayed - although the work should now be completed by the end of July.

"We would like to apologise to road users and residents for any inconvenience caused but we do hope that customers will appreciate that a variety of factors can impact on timescales even though we do an awful lot of work in the planning stage to anticipate issues and minimise them - as well as working to keep lanes and carriageways open and or work off-peak if possible once work does start.

"In this case we started late due to the severe winter weather and then an issue with site access. We then came across a technical problem which meant us changing from quicker, stud gun welding to manual arc welding which has led to most of the delay.

"The Highways Agency is committed to investing in the strategic roads network and this £800,000 scheme is designed to allow Breedy Butts bridge to carry heavier vehicles, increasing the weight of loads that can be transported along the A585 from the Port of Fleetwood to the motorway network. The strengthening of this bridge will consequently remove a limit to some of the economic activities that this port can accommodate.

"The Highways Agency also works hard to keep customers informed of developments and as well as issuing a press notice before the start of the work we also informed the media of a delay in completing the scheme. We value feedback from customers and anyone with concerns can contact us via 0300 123 5000 or [highways.gov.uk](http://highways.gov.uk)."

## **B) A bit of background**

The works to Breedy Butts and Tarngate bridges incorporate a comprehensive package of maintenance, improvement and strengthening measures. These include the replacements of defective bridge waterproofing, movement joints and paintwork to extend the life of these structures and reduce the maintenance that will need to be carried out in future. They also incorporate bridge deck strengthening to Breedy Butts designed to increase the capacity of this bridge to allow the passage of exceptionally heavy vehicles.

The strengthening of Breedy Butts involves complex and sequenced strengthening of structural steelwork.

**These works are being carried out in a phased manner in order to allow the bridge to remain open to traffic.**

The sequencing of works is required to maintain the integrity of the structure throughout the strengthening process. The work includes the removal of the structural steel and concrete, welding operations which are technically complex due to both the chemical properties of the parent metal and accessibility of the locations to be strengthened, and replacement of the steelwork and concrete.

The contract period has had to be extended because of a combination of variations in existing construction from that shown on original record drawings, difficult access to the areas to be strengthened and difficulties in welding new steelwork to the existing steelwork, together with weather and other delays. Particular causes were:

A decision to delay the start of Phase 2 works by two weeks, due to the poor weather in January and a delay in gaining agreement for the proposed scaffolding with Network Rail.

This delay was recognised early on in the phase; however it was considered at that stage that by employing extra resources, the original completion date could be achieved.

Adopting manual arc welding of shear studs where the variations in the position of the existing deck reinforcement from that shown on the record drawings prevented the use of stud welding guns.

This broad risk was identified during the design phase, and included in the risk register. The realisation of this risk only became apparent as hydro demolition works proceeded. Our current estimate allows for the adoption of similar measures in Phase 3.

Longer durations for the welding procedures than envisaged at the design stage.

In accordance with the Highways Agency specification, the welding contractor is responsible for developing his Welding Procedure Specifications to achieve the specified welds. These contractor procedures include pre heat of 150 to 250 degrees C to be maintained and the application of a 'softer' layer of welding (buttering) to receive the new stiffeners. These measures are necessary to mitigate the risks of weld defects associated with welding to the parent metal of this bridge. Initial welding trials and site welding have taken longer than anticipated at the design stage and the delays from these activities have been exacerbated by the change in sequencing and additional works that have had to be adopted to overcome difficult access to the welds.

It was reported that the works were falling behind programme at a progress meeting on 25 February at which point we had asked our contractor for a revised programme based on the activities and progress that he had carried out so far. At that time, allowing for the progress and delays within the early stages of the strengthening work, we considered an extension would be required but were unable to quantify the extension until solutions to overcome the remaining technical issues had been established. Due to the complex nature of the issues, it was not until 15 March when a full strengthening cycle had been completed that the contractor was able to revise his programme. It was only at this stage that we were in a position to know the full extent of the extension required, which was greater than previously thought. A press release was issued on 7 April and, as you know, the information boards on site were amended the same week.

The contractor has adopted 7 day working from the start of the Phase 2 works on 17 January. On 9 March, the contractor increased his resources and adopted 24 hour working for activities on the critical path that will consequently reduce the overall contract duration. At this current time in the programme, this is predominantly the strengthening operations to Breedy Butts bridge which involve the sequenced temporary removal of the structural steel and concrete from the untrafficked section of the bridge and the installation of strengthening before removed sections of steel and concrete can be replaced. Additional mobilisations for resources such as waterproofing have also been made or organised where it is considered they will reduce the duration of critical path activities.

A significant amount of preparation and planning by a specialist steelwork consultant went into the design and specification of the works in order to mitigate risks and minimise the contract period for these works. This included trial holes, sampling and testing of the existing steel and requirements for an off site mock up of the welding to be undertaken. Particular care has also been taken to minimise delays through manual control of traffic signals throughout the works and AmeyMouchel will continue to seek to minimise contract duration and lessen the impact of traffic management wherever possible.