

Case Study – Reinforced Concrete Buttress

Project

- The construction of a 6m high reinforced concrete buttress, supplemented with traditional rock bolting and meshing in Ironbridge Gorge, a World Heritage Site.

Client Requirements

- Working adjacent to a public highway, within a road closure, CAN were required to undertake extensive rock scaling, excavation, install high level rockbolts and rockfall netting and construct a large concrete buttress within a very restricted timeframe.
- A completely self supporting, free standing formwork solution was required for the buttress, without any through ties.



CAN Solution

- Comprehensive stabilisation works were undertaken on the rock face prior to constructing the concrete buttress, comprising heavy excavation and rock removal, rock bolting and the installation of rockfall netting.
- The complex geometry of the buttress required a system of climbing shutters, which changed shape between every pour. The shutters were anchored to large concrete vehicle protection barriers, which were in turn attached to a temporary, reinforced concrete slab that was later part-demolished and buried during the landscaping.
- The concrete buttress was designed to offer support to an overhanging rock buttress and to efficiently drain and support a band of weaker rock below. A rough sawn board finish was specified to ensure the buttress remained sympathetic to the surrounding landscape. This was achieved by installing individual sawn boards of unique length to the inner surfaces of the formwork after it was erected.



- Extensive drainage measures were installed within the backwall of the buttress, including 8m deep inclined drains and a three dimensional geotextile drainage membrane linked to a network of weepholes running through the 3 metre deep buttress.
- CAN worked closely with concrete formwork specialists to create a robust, bespoke formwork solution, specifically designed to minimise pouring times and reduce disruption to the public.
- Co-operating with designers, CAN were able to react quickly and efficiently to continually-evolving site conditions to build a solution that fulfilled the client's needs.