

Aesthetic repairs secure cracked masonry arch

Client & Engineers: Cumbria County Council

Location: Cleator Moor, Nr. Whitehaven

Installers: Corecut

Where the B5295 crosses the River Keekle, which links Cleator Moor with the port of Whitehaven, there are two separate masonry arches, connected by sandstone walls, with one spanning the river and the other over a public footpath.

As this part of Cumbria is very prone to flooding the second arch provides a useful outlet for flood water but was suffering from circumferential cracking of the barrel soffit and crown. This was as a direct result of differential movement between the stiff parapet sections and the masonry barrel arch.

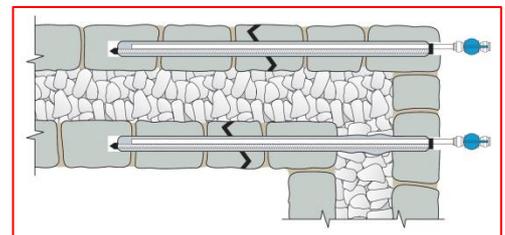
The arch, which is 10.8m wide with a 7.3m span, is constructed from squared, random rubble, snecked sandstone masonry. Engineers from Cumbria County Council had originally considered stitching the crack with ties rods and external pattress plates until Helifix suggested its SockFix grouted anchors as a far better aesthetic solution.



The Helifix solution

Council engineers designed the repair to stabilise the cracked barrel soffit using a mixture of 2m, 2.5m and 3m SockFix grouted anchors installed through the voussoirs on both sides of the arch.

- Sockfix use diamond-cored holes, with very little vibration passed to the weak substrate, and the drilled core was retained to conceal the installed anchors.
- The injection of grout under very low pressure meant installation was very gentle on the surrounding masonry and possible voids did not impede installation or effectiveness of the anchors, maximising their bond between the internal and external leaves.
- There was virtually no grout seepage and the retention of the core was used to plug the very rough surfaced stonework leading to a very aesthetic repair.
- Once the 52 anchors had cured sufficiently, the grout tubes were cut off below the face of the stonework ready for the replacement of the colour matched core.



With the fully concealed repair completed, structural integrity was restored to the arch with its visual appearance unaffected.

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