

Structural Drainage

Bridge Abutments, Deckdrain, A19, Newcastle, UK



CASE STUDY



Project Description

The A19 is a major trunk road which runs from Doncaster through to Newcastle upon Tyne. It is a mix of dual and single carriageway road with numerous at grade junctions. The Testos interchange roundabout is close to Newcastle upon Tyne and suffered from heavy congestion due to the annual average daily traffic flow of approximately 50,000 vehicles. The £159 million redesign of the interchange involved removal of the existing at grade roundabout to replace it with a free flowing dual carriageway over-bridge. Costain started work on the scheme in 2019, with the completed road opening in 2021.

The Challenge

The overbridge required abutment drainage to alleviate hydrostatic pressure at the back of the buried structures. CL513 of the Specification for Highways Works details that only block works or no fines concrete are permitted solutions. A departure from the traditional methods to find a carbon and time saving alternative would be the preferred option for the project however.

The Solution

ABG suggested the use of their **Deckdrain 1200S/ST170** and worked with Costain and their consultant Jacobs to gain approval, helped by the fact that the use of ABG's geocomposite solutions for structural drainage have been previously approved on similar National Highways projects. ABG's **Deckdrain 1200S/ST170** is a BBA approved product that replaces the traditional porous block method, with many advantages over concrete based drainage options. By comparison **Deckdrain** is very light-weight and simple to install, with no manual handling equipment or form work required.

Project Information

Client	National Highways
Contractor	Costain
Product	ABG Deckdrain 1200S/ST170
Quantity	1,600m ²
Benefits	<ul style="list-style-type: none">• Simpler & faster to install compared to hollow concrete blocks, with no lifting equipment required• Protects structural waterproofing layer against hydrostatic pressure• Impressive 94% carbon saving method



ABG Deckdrain 1200S

ABG LTD

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The **Deckdrain** is placed up against the completed structural waterproofing layer and fixed in place using self adhesive stick pins. The **Deckdrain** is applied to the structure with the filter geotextile facing outwards, ready to be backfilled with structural fill. The geotextile then acts as a filter to prevent any fines from blocking the drainage core.

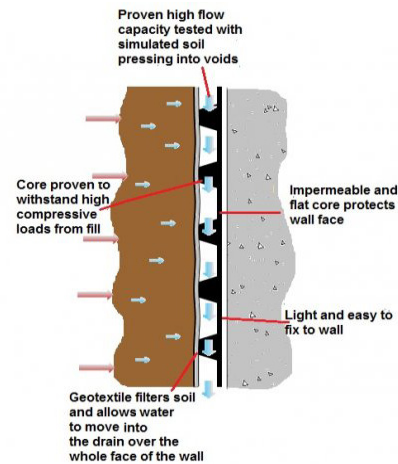
Deckdrain, approved by Neath Port Talbot Council, Welsh Assembly Government and Network Rail, assisted in the completion of the scheme within budget and on time. Costain received national recognition for this project with the award of 'Considerate Constructors' 2013 and 'Constructing Excellence in Wales' 2012.

The ABG Service

ABG also supplied their UK manufactured **Fildrain Type 6** and **Type 10** products for highways edge drainage on the approach and exit sections of the new A19 dual carriageway. ABG's **Fildrain Type 6** is a carbon and cost saving alternative to a granular narrow filter drain that was used alongside the trapezoidal concrete channel to HCD F18.



Deckdrain wrapped around a perforated carrier pipe



Function diagram to show key Deckdrain features

Application	ABG System	Traditional Method	Carbon Saving
Back of Wall Drainage	<ul style="list-style-type: none"> Deckdrain Light-weight drainage geocomposite Low carbon hand installation Recycled materials 	<ul style="list-style-type: none"> Porous Concrete Blocks Concrete blocks backfilled with gravel Machine installation 	<p>94%</p> <p>31 kgCO₂e /m²</p> <p>ABG Trad</p>

Huge carbon footprint reducing alternative



The completed A19 dual carriageway fly over structure

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