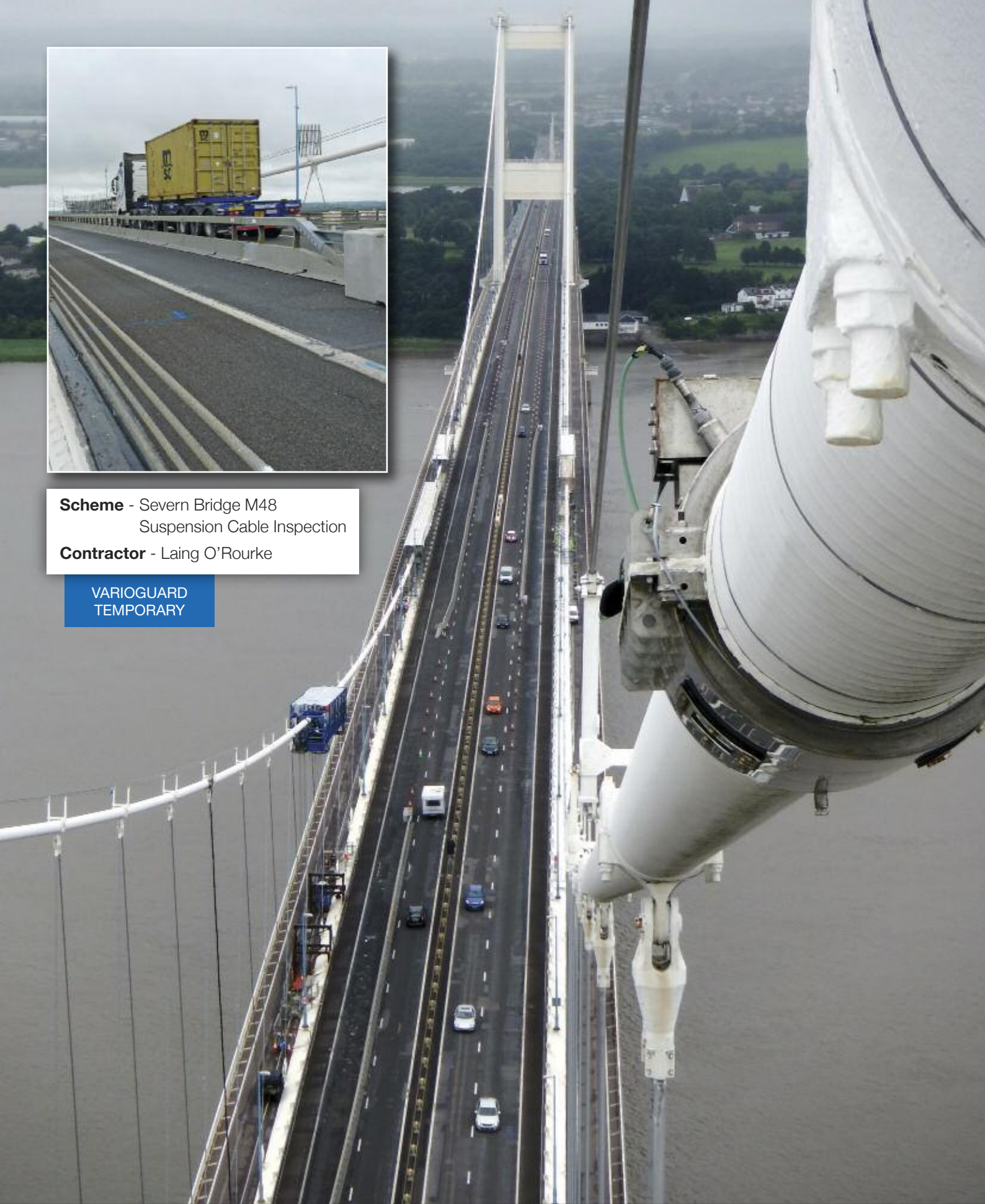




**Scheme** - Severn Bridge M48  
Suspension Cable Inspection

**Contractor** - Laing O'Rourke

VARIOGUARD  
TEMPORARY



*Severn Bridge M48 Suspension Cable Inspection*

**VARIOGUARD**<sup>®</sup>

[www.varioguard.co.uk](http://www.varioguard.co.uk)

**SAFETY IS  
OUR BUSINESS**

# Products that are fit for purpose

Laing O'Rourke have been engaged by Severn River Crossing to carry out maintenance and inspection of the M48 Severn Bridge Crossing as an on-going project since 1996, including maintenance of the bridge itself and surrounding concession areas. This challenging work involves working at height, with live traffic, above water and in restricted spaces, all subject to adverse weather conditions.

One of the major projects on the structure is the close inspection of the bridge's suspension cables carried out for Highways England. Laing O'Rourke is responsible for the organising of the extensive traffic management.

Scaffold access points to the cables are needed and due to the restricted width of the bridge deck, intermittent motorway lane closures are necessary. These scaffold points are close to the bridge's permanent safety barriers and required a secondary temporary vehicle restraint system.

ASSET VRS Varioguard steel barrier is utilised to meet the necessary safety requirements for the protection of the travelling public and site operatives involved in the works.

The Asset Vehicle Restraint System (VRS) is tested to BS EN 1317-2:1998 containment level H2. Galvanised steel elements lock together to make a rigid, energy-absorbing barrier where errant vehicles driving onto the foot section stabilises the Varioguard and limits deflection. A narrow 700 mm foot section and lightweight construction, which does not need securing to the decking, enables the barrier to be easily and safely re-positioned along the bridge as work progresses.

The Severn Bridge crossing main cable works utilise four lengths of Varioguard temporary safety barrier, up to 160 metre long.

The temporary VRS safety barrier's construction and weight was a major consideration, as the bridge deck consists of a 12mm steel plate topped with 35mm of mastic asphalt and 3mm Shellgrip high-friction surface dressing.

A 44 tonne gross vehicle weight restriction applies on the bridge with HGVs being limited to the inside lane on both sides of the highway. With this in mind, each end of the Varioguard temporary barrier positioned on the bridge decking requires securing to provide stability to the barrier's length, without bolting it to the deck! Concrete TVCBs are designed to deflect errant vehicles whilst providing a solid, stable end section. Tapered 3 metre long end sections lead into the Highways England approved ASSET barrier joints whilst oblong concrete sections provide runout on the steel barrier sections.

Laing O'Rourke's Project Engineer for the Severn Crossing has high praise for the products and companies involved in keeping the 50 year old bridge "fit for purpose".

Laing O'Rourke advises that they have had good service and good professional support with the temporary barriers being moved quickly and efficiently. This has helped tremendously when staff are working at height, with live traffic flow above water and at night.



## VARIOGUARD®

ASSET have provided professional support with the temporary barriers being moved quickly and efficiently.

### VARIOGUARD®

TEMPORARY SAFETY BARRIER

When used as a temporary safety barrier VARIOGUARD® is usually anchored at each end with four 500 mm long anchor pins into pre-drilled holes.



### VARIOGUARD®

PERMANENT SAFETY BARRIER

VARIOGUARD® has been installed as a permanent barrier solution at hundreds of locations including the M5 Avonmouth Bridge and the Kingston Bridge in Glasgow, as well as numerous road-over-rail locations.



### SOLOGUARD®

SOLOGUARD® is the only safety barrier for carriageway crossover points allowing opening and closing by two operatives within 5 minutes.

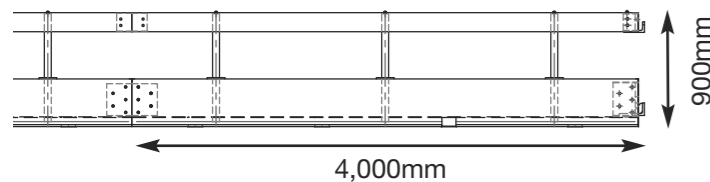


### VECU-STOP®

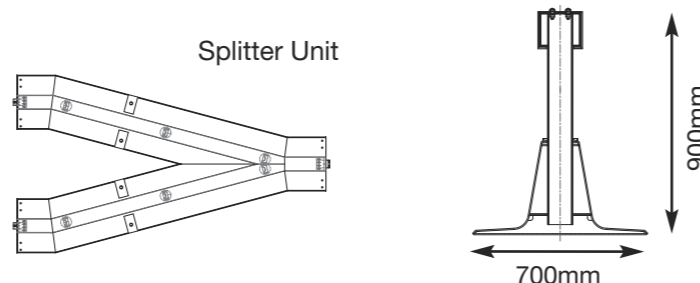
VECU-STOP® crash cushion system is based on more than forty years of experience in designing road restraint systems.



VARIOGUARD® Standard Element



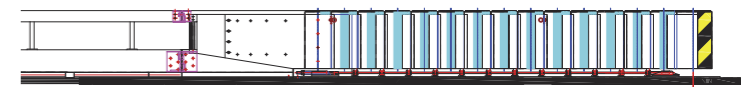
Splitter Unit



Expansion Joints



VARIOGUARD® Transition to Crash Cushion



# SAFETY IS OUR BUSINESS



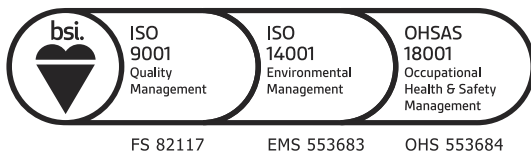
## Quality

ASSET VARIOGUARD® System Number	Containment Performance Class
ASSET VARIOGUARD® System 1	N2 : W6
ASSET VARIOGUARD® System 2	N2 : W6
ASSET VARIOGUARD® System 3	N2 : W4
ASSET VARIOGUARD® System 4	N2 : W2
ASSET VARIOGUARD® Ultra System 5	N2 : W5

Safety Barrier Gate	Containment Performance Class
ASSET SOLOGUARD® Emergency and Maintenance Crossing Point	H1 : W5

Transition Type	Containment Performance Class
ASSET VARIOGUARD® transition between ASSET VARIOGUARD® and Safety Barrier	N2 : W2

ASSET International is a division of Hill and Smith Ltd. The 'vehicle restraint systems' division of the business was established in 1998 to provide ASSET VARIOGUARD® temporary safety barriers to the highways sector. The business now provides a full installation service from strategically located depots around the UK and Ireland.



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