



M5

CENTRAL RESERVE

UPGRADE

Case study



The Challenge

Highways England manages the strategic road network in England, comprising motorways and some A roads. When steel central reserve barriers are coming to the end of their working life, Highways England has a policy to replace them with concrete barriers on motorways and very busy sections of dual carriageway.

Concrete barrier systems are highly robust and are designed to safely redirect errant vehicles and prevent them from breaking through the barrier in a collision.

In summer 2019, Highways England began a scheme to upgrade the central reserve barrier between Junctions 24 and 25 of the M5 motorway, in Somerset.

The M5 is a busy motorway linking the Midlands and South West of England, and is used by thousands of motorists each day.

The Solution

As a multi-award winning manufacturer and supplier of concrete roadside safety barriers, Hardstaff was appointed by Highways England contractor, Barrier Services, to provide a suitable safety barrier system for this scheme.

The Hard Facts

- ▶ The REBLOC RB84XEAL_8 permanent concrete vehicle restraint system (VRS) was installed along 6.5km of the M5, between Junctions 24 and 25
- ▶ A drainage option was also installed, allowing water to drain through the barrier
- ▶ The barrier deviated around and protected existing structures in the central reserve of the M5
- ▶ The REBLOC RB84XEAL_8 requires a low ground bearing capacity, so the system can be installed onto 200mm of asphalt or concrete
- ▶ Two Steel Step Barriers were installed on the route providing emergency crossing points in the central reserve barriers
- ▶ Hardstaff became an integral part of the Highways England and Barrier Services team in order to successfully deliver this project

FOR THE LOVE OF LIVES



The REBLOC RB84XEAL_8 permanent precast concrete vehicle restraint system (VRS) was installed along the 6.5km stretch, protecting road users from barrier breakthroughs along the busy route.

Tested to European Standard EN1317, the embedded system has a high containment performance class of H2 and can safely contain and redirect the impact of a 13-tonne bus travelling at 80km/h (50 mph) and impacting at 20 degrees.

The REBLOC system forms a high strength continuous chain of barrier that provides high containment and safely transfers energy and impact forces.

The system was also installed with integrated drainage channels, allowing water to drain through the barrier.

REBLOC RB84XEAL_8 was the ideal option for this project, with the ability to deviate around and protect existing structures in place on the M5 central reserve, and to serve as a foundation for matrix signs.

The barrier was also easily connected to an existing steel barrier in place at the end of the system, making the REBLOC RB84XEAL_8 a highly adaptable and flexible choice.

For added safety, two Steel Step Barriers were installed on the route providing emergency crossing points in the central reserve barriers.

The system consists of a rapid opening and closing bi-directional gate. With its extremely low deflection and high containment capability, the Steel Step Barrier is the ideal system for emergency access points between concrete barrier systems.

As concrete barrier experts, Hardstaff was an integral part of the Highways England and Barrier Services team throughout the project, and was invited to take part in collaborative meetings that took place during the scheme.



Excellence
Leaders in barrier solutions



Commitment
Quality products and stand out service



Trust
Dedicated team, delivering on time and on budget

The Outcome

Thanks to the installation of this REBLOC barrier system, many thousands of people who have used the M5 between junctions 24 and 25 have been and continue to be protected from barrier breakthroughs on this busy route.

Highways England has also been able to comply with its policy of replacing old steel central reserve barriers with concrete alternatives, at the end of their working life.



Dan Raffles, Director of Barrier Services, said: “The REBLOC RB84XEAL_8 precast concrete barrier enabled the designers to create a hybrid centre reserve.

“The existing drainage system was utilised to avoid the cost of fully hardening the centre reserve to host the VRS. The barrier provided the best value engineered solution for the upgrade of the centre reserve vehicle restraint system to a H2 W1 barrier.

“The barrier requires a low ground bearing capacity, so the system can be installed onto 200mm of asphalt or concrete. The minimal foundation requirements allow the REBLOC barrier system to provide an advantage by a reduction in the ground preparation works that are required to host the barrier and thus a lower scheme cost.

“Our team installed over 700m of the RB84XEAL_8 barrier in a four-hour working window. Our capability to install the barrier at this rate resulted in reduced time on site, reduced exposure and reduced risk.”

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