

M1 Smart Motorway Upgrade - Junctions 28-31



Client:
Highways England

Contractor:
Costain

Engineer:
Mouchel (Manchester)

Marshalls products used:

- 15,000 linear metres of Mono Beany
- Bespoke transition unit

Marshalls has supplied over nine miles of Mono Beany one-piece combined kerb and drainage between junctions 28 and 31 of the M1.



Marshalls supplied 15,000 linear metres of Mono Beany one-piece combined kerb and drainage to the new M1 smart motorway scheme.

Challenge

The road network is a crucial part of our national transport system and failures to improve these networks increases cost, hinders employment opportunities and makes it harder to do business.

Congestion is already a serious problem on the M1 between junctions 28 and 31 which carries around 95,000 vehicles per day.

The challenge was to install new infrastructure, including drainage attenuation, with minimal disruption and to select a suitable

product engineered to help contractors meet deadlines. This would ensure the M1 was open and running to its full capacity within the project timescales. The client also needed to keep within budget and didn't want to pay for a costly over-engineered system.

Solution

Marshalls was chosen to supply linear drainage to the project. Mono Beany is Marshalls' first one-piece combined kerb and drainage system made with ultra-tough M-Tech concrete which has been proven to significantly reduce installation time.

This innovative product is available in two depths which both have a recycled inner plastic core to provide hydraulic flow benefits at low and medium capacities. Each one metre

unit can carry up to 40 tonnes (Class D400) when trafficked. The inlet apertures are divergent and angled at 45° to prevent blockages and maximise drainage efficiency. These features ensure surface water is cleared rapidly and internal flow is smooth and efficient.

The hydraulic capacity requirements varied along the run and therefore a mix of Mono Beany 321 and 502 units were required as this was deemed more cost-effective. Marshalls also used its expertise to develop a new transition unit to complete the M1 scheme as part of the Highways Agency's focus on innovation. This was developed in order to create a smooth hydraulic transition from a 502 to a 321 Mono Beany unit, which reduced the hydraulic capacity, while coming within budget.

Benefit

Costain initially anticipated it would lay 240 metres of Mono Beany per day, however using the revolutionary, easy-to-install Mono Beany system the installation time was considerably reduced, with 340 metres installed per day to the scheme.

Malcolm Bell from Costain said: "Due to how quickly we were able to install the innovative Mono Beany system there was an increased demand on deliveries to site. Marshalls offered a reliable and guaranteed supply throughout the project, delivering three to four loads per week direct-to-site, often delivering two loads per day. This helped to ensure we met our completion deadlines and kept works disruption to a minimum.

"Working with Marshalls also offered Costain a dedicated and knowledgeable design team to meet our requirements for this scheme.

"These are all important factors when tasked with installing over nine miles of drainage to a major strategic route connecting people, communities and businesses."

In the longer term this scheme will help relieve congestion and smooth traffic flow along this stretch of the M1, improving safety and journey times for commuters. These benefits will also support economic development in the region.

Responding to the recent announcement by Highways England that there will be a £1.5bn investment in smart motorway schemes David Jackson, Trading Drainage Director at Marshalls said: "Marshalls is already engaged in a number of smart motorway schemes as part of this investment, offering design expertise on a wide range of suitable products.

"As the UK's leading supplier of hard landscaping materials, we are committed to developing effective water management and linear drainage solutions to meet the needs of contractors.

"Having already supplied Junctions 28-31 of the M1, we are poised for further involvement to improve the road network and have the capacity and capability to deal with further orders."



Costain were able to install 340 linear metres of Mono Beany per day to the scheme.



Mono Beany is manufactured using ultra-tough M-Tech concrete.



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