

Bilstone Road Tram Track

CASE STUDY

Birmingham, United Kingdom



Part of a ten year project by Midland Metro Alliance, MMA. The project will see multiple tram track improvements and extensions throughout the west midlands area. Many engineering challenges were overcome by the use of fibre reinforced concrete.'



Project Owner

Midland Metro Alliance

Product

Durus Macro

Function

The Durus Macro fibre was used at Dosage 6Kg to replace the need to use Steel mesh reinforcement

Contractor

Colas Rail

Volume

3000m³

Background

All modern tramways are powered by electricity and run through highly populated residential & industrial areas. With these factors inner city infrastructure construction have increasing time and safety constraints. Ensuring the structural engineering is suitable and gives the minimal disruption, within budget is all part of the challenge. Steel reinforcement can also act as an electricity conductor, meaning the use of it as reinforcement could cause concern.

Solution

Durus Macro synthetic fibres are non metallic embedded reinforcement within the concrete. Not having to place steel mesh reinforcement eliminates the potential for stray electricity through the steel. Using fibre reinforced concrete reduces the construction time and increased site safety. 3D distribution of fibres ensures correct placement of the reinforcement throughout the concrete.



Concrete direct to the track base



Secure embedded tram tracks

Benefits of the solution

Being able to complete inner city projects on or ahead of time benefits contractor & client.

Placement of the concrete is easier due to not having to navigate around steel reinforcement.

The loading requirements have been maintained by the use of Macro Synthetic fibres.

The environmental benefits of using fibre reinforcement over steel reduced the carbon footprint

Health & Safety associated with steel fixing are eliminated.

Result

- Concrete could be poured directly into the formwork without the need for additional machinery.
- Longer sections of track bed can be poured in one go.
- Construction time can be reduced by up to half as no steel placing and fixing is required.
- Guaranteed placement of reinforcement ensuring the track beds perform properly.

The slab was constructed in less time than it would have taken using steel mesh reinforcement. This not only saved time but also the overall cost of construction.

Products used



Durus S500