

Transport for Greater Manchester: Newton Heath Metrolink



Project Details:

Client: Transport for Greater Manchester

Principal Contractor: Story Rail

Drainage Partner: AQUA Fabrications Ltd

Design Partner: InoRail Design

Location: Newton Heath, Manchester

Application: Light Rail Infrastructure

Approved Design:

- 210lm of trough,
- 490lm full-height stackers
- 70lm of half-height stackers

Project Overview

As part of Transport for Greater Manchester's £150 million network improvement programme, modular drainage system units manufactured by Rosehill Group formed the drainage core of AQUA Fabrications' Track Enhancement Drainage System (TED) during a major drainage renewal at Newton Heath Depot.

Working alongside Story Rail and InoRail Design, the project replaced ageing drainage infrastructure beneath one of the busiest sections of the Metrolink network. A modular drainage system approach was selected to provide high-capacity water storage, rapid installation during limited possession windows, and a more sustainable alternative to traditional drainage construction.

The installation demonstrates how modern drainage system engineering can improve network resilience while reducing maintenance requirements and embodied carbon.

The Challenge

- Insufficient capacity - existing drainage infrastructure was no longer providing the performance required
- Tightly controlled rail possessions meant water management had to be improved without extending possession windows
- Repeated rail loading required a system that could withstand dynamic loads while maintaining hydraulic performance
- Operational light rail environment demanded programme certainty throughout construction
- Long-term resilience - the solution needed to reduce maintenance while supporting future climate resilience

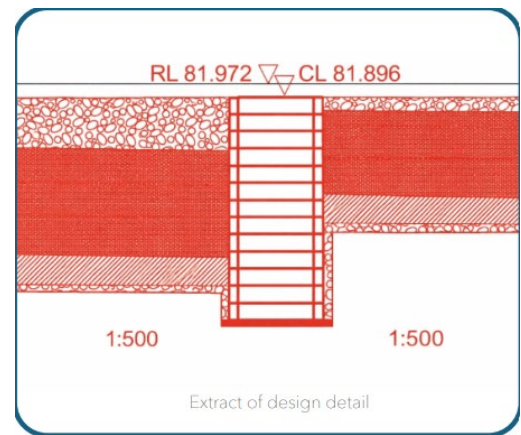
The Solution

- Modular drainage units incorporated into AQUA Fabrications' Track Enhancement Drainage System
- Approximately 210 metres of modular drainage installed
- Stackable drainage modules provided significant water storage within a compact footprint
- Lightweight recycled rubber components simplified handling and installation compared with conventional materials
- Rapid modular installation during planned engineering possessions, integrating with the wider track renewal works

Results

- ✓ Improved drainage capacity across a critical section of the Metrolink network
- ✓ Climate-resilient design: accommodates rainfall events up to 1-in-1000-year storms with 40% climate change allowance
- ✓ More than 20 tonnes of waste diverted from landfill through the use of recycled rubber
- ✓ Approximately 14 tonnes of CO₂ emissions avoided compared with equivalent concrete drainage construction
- ✓ Reduced maintenance requirements through a durable, modular drainage system
- ✓ Successful integration within one of the largest rail infrastructure programmes currently underway in Greater Manchester





Constructability

The modular design of the system allows for simple installation in various locations, whether it is CESS, 6ft or Toe/Crest drainage. Requiring only a minimum 50 mm surround, the system maximises space without sacrificing performance or rigidity. The units have a male and female profile, allowing them to be stacked to the height required - typically dictated by the volume of water that will pass through the system.

Combinations of different heights & lengths of porous units allow for greater flexibility and support manual handling procedures, particularly on more remote sites. The system is also compatible with all AQUA prefabricated catch-pits.

Why It Matters

Rail drainage is often constrained by limited construction windows, restricted access and the need to minimise disruption to passengers.

By combining Modular Drainage Systems with AQUA Fabrications' TED system, the Newton Heath project demonstrates how modular drainage technology can deliver greater hydraulic capacity, faster installation and lower embodied carbon without compromising long-term performance.

As rail and light rail operators continue to adapt infrastructure for increasingly intense rainfall, modular drainage solutions provide a practical approach to improving network resilience while reducing whole-life costs.

“ Very straightforward to specify for construction. The modular design gave us a lot of flexibility to adapt the layout to suit the project’s requirements, without adding complexity on site. It was also a genuinely unique, off-the-shelf solution, saving time on site compared to traditional French drains, with a reduced maintenance regime and strong green credentials that made it an easy choice from a sustainability standpoint. It’s made the whole process smoother from specification through to installation, and it’s a system we’d be happy to use again on future projects.” - Track Engineer, InoRail

Contact us:

Work with our specialist drainage team to solve your water management challenges in demanding infrastructure environments.

E: info@civilwatermanagement.com T: 0203 189 1468 W: www.civilwatermanagement.com