

Project Report

ENGINEER	DESIGNER	CLIENT
Tellus Designs	TfL	TfL
CONTRACTOR	INSTALLER	
Pro Rail Services	Pro Rail Services	

Requirement

The Chigwell Drainage Pipeline project, carried out at Chigwell Station in London, required a stable and long-lasting solution to support an elevated drainage pipeline on a steep railway embankment. The pipeline needed to carry water from a catch pit at the top of the embankment to a discharge point at its base, spanning a distance of around 30 metres.

Conventional foundation methods were unsuitable because no excavation was permitted and the slope already contained grout pockets for stability. The 30-degree gradient and presence of an existing Cable Route Management System (CRMS) further restricted the options available. TfL therefore required a foundation system that was both adaptable and non-intrusive, ensuring the embankment remained undisturbed while providing reliable support for the new drainage infrastructure.

Testing

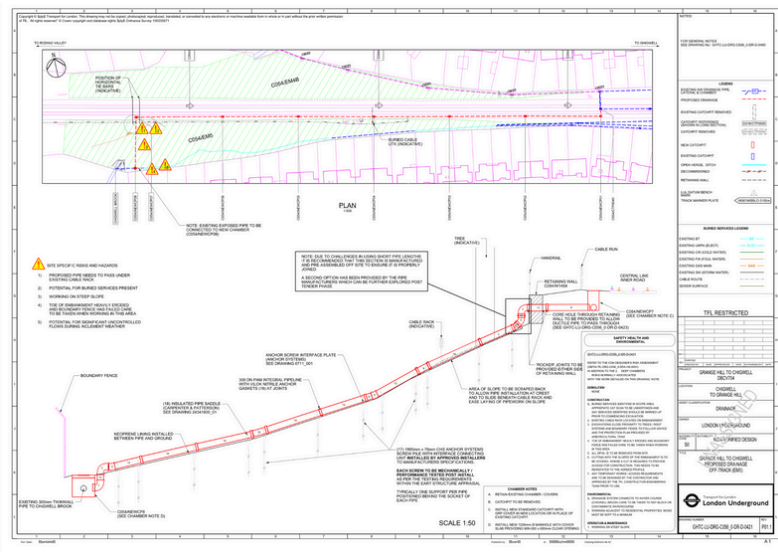
Before installation, a suitability test was undertaken to confirm that the Anchor Screws would meet the project's requirements. This process involved proofing the installation method on-site, recording torque values, and measuring the vertical load capacity to demonstrate the Anchor Screws performance and suitability for the requirements of the project.

Testing also highlighted a key advantage of Anchor Screws: their ability to be removed and repositioned if grout pockets were encountered. This adaptability allowed the installation team to work efficiently without delays, giving confidence to TfL and the engineering team that the chosen approach was both practical and robust.

Solution

Anchor Systems supplied 1595mm Anchor Screws, complemented by bespoke interface plates designed to account for the changing angle of the slope and to connect directly to a third-party pipeline saddle. This tailored approach ensured the anchors not only stabilised the foundation points but also provided a secure, engineered fixing system for the elevated drainage pipeline.

The installation was completed over three days using lightweight, hand-held equipment including a 400H Torque Head, 30L hydraulic power pack and torque gauge. Despite access difficulties caused by the steep embankment, trees, and elevated track separation, the works were carried out safely and without disruption to rail operations. By avoiding excavation and minimising disturbance to the embankment, the Anchor Screw system proved to be an efficient and low-impact alternative to traditional methods.



Drainage Pipeline Anchoring

Chigwell Station

Results

The project successfully delivered a stable, long-term foundation solution for TfL's new drainage pipeline, ensuring effective water management across the Chigwell rail embankment. The use of Anchor Screws provided a fast, adaptable and environmentally considerate installation, avoiding the risks associated with excavation or heavy plant use on a sensitive slope.

For TfL, the solution achieved its goal of providing secure support for essential drainage infrastructure while maintaining the integrity of the embankment. The project also demonstrated how Anchor Systems' ground anchoring technology can be applied to challenging rail environments, reinforcing its suitability for pipeline anchoring, slope stabilisation, and other rail infrastructure projects.

