

PROJECT

Northern Line Extension

OVERVIEW

CLIENT:
FLO

PROJECT TYPE:
Waterproofing

PRODUCTS USED:
Proofex Engage Type A
Nitocote CM210
Supercast SW20 Type B
Renderoc HB45
Conbextra TS

SUPPLIER:
Fosroc

LOCATION:
London

COMPLETION DATE:
2020

NORTHERN LINE EXTENSION ON TRACK AS MAJOR WORKS PROGRESS AT PACE



Work is progressing well on an extension to the Northern line from Kennington to Battersea Power Station, which will help to regenerate areas including Vauxhall, Nine Elms and Battersea itself, designated regeneration areas on the South Bank.

The works on this development are being carried out by a joint venture comprising of equal partners Ferrovial Agroman and Laing O'Rourke (known as FLO), who were selected by London Underground (LU) to extend the Northern line.

TRANSFORMING THE CAPITAL

The Northern Line Extension (NLE), developed by Transport for London (TfL), is targeted for completion in 2020. It is expected to support around 25,000 new jobs and over 20,000 new homes and will improve transport links and public spaces in the surrounding areas, which is an essential element in the transformation of these targeted locations of the South Bank.

The development of the NLE includes two new stations, one at Battersea Power Station and the other at Nine Elms. Once the extension is complete, journey times from Battersea and surrounding areas to the City and West End will be within 15 minutes, and the additional stations will reduce pressure on the existing Vauxhall Tube station.

A PROJECT ON A COLOSSAL SCALE

The scale of the project is huge, as two tunnel boring machines create the new 3.2km long tunnels required to extend the line. The machines are currently tunnelling up to 26m below the surface, and will shift more than 300,000 tonnes of earth over a six month period.

This is the first major Tube line extension since the Jubilee line in the late 1990s.

SIG CAS' EXPERIENCE AND EXPERTISE SECURE PROJECT

SIG Construction Accessories became involved in the project when FLO approached SIG Construction Accessories Ash Vale branch supplying waterproofing and concrete

accessories to the build. Niall Watson, FLO Senior Engineer, said:

“Working through the designs with Fosroc, with their relationship with SIG, they were able to ensure that they had stock of the material when we required it on site.”

WORKING TOGETHER WITH SUPPLIERS TO DELIVER GREAT SERVICE

Having supplied Fosroc waterproofing products to numerous projects before, the team at SIG CA engaged Fosroc early to specify the most suitable and cost-effective product for the development.

Ed Matthews, Regional Sales Director, comments, *“Speaking to manufacturers Fosroc at the very start of the project meant that we were able to give the customer all the information they required to make a decision, plus as Fosroc were already engaged, it was a straightforward process for us to deliver their waterproofing products to the site.”*

The products specified from Fosroc provided a fully integrated solution for the station boxes along the NLE where waterproofing is a vital part of the construction, because the join between the Underground tunnel and the station box must be absolutely watertight. The project required materials that could withstand water pressure as there was no external drainage; primary and secondary waterproofing measures; buildability and repairability during the construction phase and repairability and maintainability following completion.

Gordon Sprouse, Fosroc Specification Hub Manager, commented that *“In addition to being competitive Fosroc had demonstrated their ability to problem solve and adapt our solutions to improve buildability and in support have provided over 50 drawings to date”.*

The base slab of the station box was constructed by placing Proofex Engage Type A waterproofing membrane prior to pouring 1.5 metres deep of concrete for the slab. Proofex Engage has a proven track record and the advantage that it bonds to the structure, not the blinding / substrate, preventing water tracking.

Proofex Engage is a fully bonded membrane, robust and not easily punctured with an integral lap detail. The product comes with a full range of ancillaries enabling watertight construction of details such as pile caps, pipe entries and corners.

Nitocote CM210 cementitious waterproof coating has been applied to walls, bonding to the substrate and preventing water tracking.

Supercast SW20 Type B swellable waterstop was incorporated in the reinforced concrete joints.

With repair and maintenance forming an important part of the solution for the NLE, Fosroc’s new Supercast Predimax injection hose was installed because it allows for remedial work to be carried out should there be a failure in the waterproofing system after construction. If failure should occur, Supercast Predimax allows resin such as Carbocryl Hv to be injected to prevent water ingress into the structure.

In addition Renderoc HB45 repair mortar and Conbextra TS grout have also been supplied to the project. Fosroc Area Sales Manager Tony Woodham who has managed the project on a day to day basis commented *“SIG have serviced the three NLE sites well. Forward knowledge of what has been required in the coming months has enabled them to bring the product into their Ash Vale and Thurrock locations prior to it being required on site. They have been able to run the product in as and when it is required. A dedicated point of contact within SIG for both FLO and myself has also helped with regards the management of the business”.*

FORS COMPLIANT VEHICLES ENSURE SMOOTH DELIVERIES

One of the challenges due to the scale of the project that the SIG CA team faced was delivery. It was vital that SIG could deliver products intermittently via a strict booking system and on a strict route. Fleet drivers had to be FORS approved, meaning that they had to be part of the Fleet Operator Recognition Scheme, a voluntary accreditation scheme that promotes best practice for commercial drivers. The safety requirements in FORS are aligned with CLOCS (Construction Logistics and Community Safety) which is a construction-logistics industry-led programme embedding a road safety culture.

Ed Matthews comments, *“During the project the team at Ash Vale and Mark Fyfe, UK Infrastructure Director, developed a very close working relationship with FLO. Our aim was to provide them with a seamless service, from the initial order, through to our FORS approved drivers delivering the products. The customer was so pleased with the service that it led to additional sales of construction and concrete accessories off the back of the main project.”*