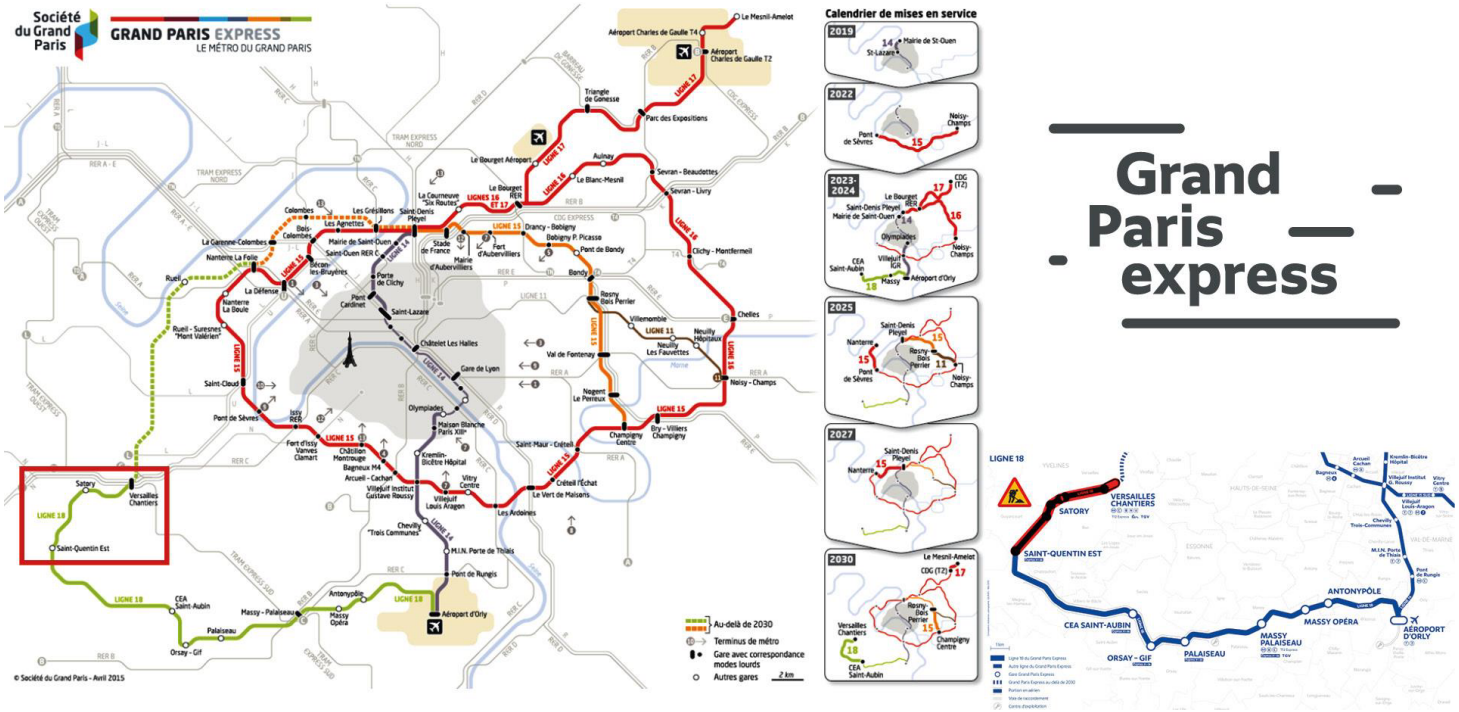
Grand Paris Express. Line 18

Versailles - Saint-Quentin-en-Yvelines, France / 2023

Structural type	Structures with solid slab floors supported by reinforced concrete load-bearing walls. Walls reinforced with fiberglass.
Characteristics	Civil works for the tunnel, stations and auxiliary works for the subway and auxiliary structure 24 - Lot 3A
Owner	Société des Grands Projets
Client	Groupement Spie Batignoles - Ferrovial
Scope	detailed design and construction support



The Lot 3A of Paris Metro Line 18 features two distinctly different structural types. On one hand, it includes the Saint-Quentin station (SQE) along with its auxiliary buildings, as well as a series of annex structures (OA) located between various stations along this extension of Line 18. These annexes provide access points to the metro tunnel for maintenance operations.

The Saint-Quentin station, situated at the beginning of this extension, will serve as the launch site for the tunnel boring machine (TBM), which will proceed toward the Satory and Versailles Chantier stations, and will be retrieved via one of the previously mentioned OAs. The fact that the station marks the beginning of TBM push operations has significantly influenced its design. A notable feature is its north end wall, which has a thickness of 1.50 meters and is constructed as a double-sided formwork wall. The backfill behind this wall is completed before beginning the TBM's push process. The section of the wall that the TBM will penetrate has a reduced thickness (0.50 meters) and includes fiberglass reinforcement. The station design also features spans of over 24 meters between supports at levels S1 and roof, necessary to avoid supports in the center of the station where trains pass.

As for the OAs, they consist of shafts of variable depth, depending on the height of the ground above the metro tunnel. These shafts can reach depths of up to 50 meters, as seen in the case of OA21, on top of which a one- or two-story building is constructed.

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