



TRANSPORTS - TUNNELS

Barbados Roadway Tunnel

ABOUT

The Barbados Tunnel is a 480m double tube roadway tunnel, part of the Pinhal Interior Motorway in Coimbra. The tunnel was defined mainly as a mined drained structure since it crosses a small hill.

Structural and geotechnical solutions

Being so, a length of 468m will be excavated according to the New Austrian Tunneling Method (NATM). The portals will have 6 m of cut and cover sections, resulting in the total length of 480 m. Even with a total length inferior to 500 m, several requisites defined in European Directives, such as 2004/54/CE for long tunnels, were comprised, including the building of emergency and maintenance niches.

The cross section of both tubes was defined in order to accommodate 2 lanes of 3,5 m, shoulders of 1,0 m and sidewalks on both sides with a clearance height of 5,0 m. Different tunnel support types were developed with regard to the individual ground types and particular boundary conditions (overburden, surface conditions, etc.). The vicinity to buildings was also considered to limit surface settlements.

The defined areas for the tunnel portals, with considerable overburden, resulted in the excavation of several permanent slopes. Additionally, since both tubes have the same length and the alignment has a slight curve, the North portal will have a gap between the exits of both tubes. Thus, stability studies were developed for the portal slopes, both for the temporary slopes for tunnel excavation and for the permanent slopes, in order to control their influence in the nearby buildings and

FACTS

Year: 2010-2011

Client: Pinhal, ACE / Ascendi

Services: Detailed design, Tunnel Design and Engineering, Structural Engineering, Electrical design & Energy systems, Geotechnical Engineering, Geological and geotechnical studies, Slope stabilisation, Instrumentation & Monitoring, Risk assessment and management, Technical specifications

TEAM

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LOCATION

Coimbra, Portugal

infrastructures.