Largest infrastructure project

The Follo Line Project is currently the largest infrastructure project in Norway and will include the longest railway tunnel in the Nordic countries. The new double track rail line between Oslo Central Station and the regional town Ski forms the core part of the InterCity development southwards from the capital.
A modern high speed railway line between Oslo and Ski

The Follo Line will have one of the first tunnels in Norway constructed with tunnel boring machines. Construction work is at full speed from five rig areas.

The main construction work started in 2015, and completion is scheduled for December 2021.

The project includes:
- New double track line between Oslo Central Station and the public transport hub at Ski
- 20 km long twin rail tunnel
- Extensive work at Oslo Central Station
- Construction of a new station at Ski and surface alignment
- Necessary realignment of the existing Østfold Line, both on the approach to Oslo Central Station (with new tunnel), and between the new Ski station and the future tunnel for the Follo Line

The large scale project is under production simultaneously from five different work sites from Oslo to Ski. With its novel methods and solutions, this project offers a model for future railway project developments in the region.

Urban challenges
This fact sheet presents the four different parts of the Follo Line Project giving a short description of status and the work to be executed by the entrepreneurs, with Bane NOR as client.

Starting from the city center of Oslo extensive work has been carried out to prepare for the new rail lines towards Oslo Central Station, the main railway hub in Norway. Currently tracks for the Follo Line and the Østfold Line are clustered in a concrete tunnel with three tracks at the southern end and seven tracks at the northern end, where the width is 55 metres. The concrete tunnel is constructed under the Oslo Medieval Park where a large archeological excavation is approaching the final phase.

The northernmost part of the Follo Line constructions close to Oslo Central Station.
Construction work between Oslo Central Station and the tunnel entrance at the Ekeberg Hill:

- New tracks for the existing Østfold Line
- Reconstruction of existing concrete tunnels
- Extension of concrete tunnel for tracks between Oslo Central Station and Lodalen (maintenance area)
- 600 metre concrete tunnel
- New technical system (telecom, signals, contact line, tracks, low-voltage, high-voltage) and adaption to existing system

The northern 1.5 km of the tunnel section is located close to sensitive infrastructure, and is excavated by a combination of drill and blast and drill and split methodology without blasting. The excavation of the new rail tunnel is already successfully performed passing most of the sensitive installations in the Ekeberg Hill. The main entrance to the tunnel system is now under construction.

Tunneling from Central Oslo:

- In total about 5 km of tunnel, of which 3.5 km is rail tunnel
- The northern part of the Follo Line's two bores
- New bore for the part of the Østfold Line that is included
- A rock chamber for the two Follo Line tracks and the Østfold Line track
- A pumping centre for all the water that runs into the Follo Line tunnels
- Cross-tunnels and access tunnels

Currently excavation is performed by means of four hard rock shielded tunnel boring machines (TBM), operating from one centrally located access point at Åsland. Two are excavating towards Oslo, and two are excavating towards Ski. Breakthrough is scheduled by the end of 2018. For the first time in Europe four tunnel boring machines are operated simultaneously from one big scale rig area.

The drill and split methodology is used close to sensitive infrastructure.

The rig area at Åsland is suitably located in relation to the tunnel and to the main road system.
The main part of the tunnel:
• Two parallel 18.5 km tunnel tubes
• Cross passages every 500 metres for maintenance and escape routes
• Production of segments for the tunnel lining on site

Important criteria for the tunnel:
• Impermeable and safe
• Long service life
• Minimum maintenance requirements
• Optimal train handling (to ensure reliable traffic)
• Minimum impact on the local environment
• During the construction and in operation
• Skills upgrading and development

TBM were chosen as main excavation method due to:
• The tunnel’s length
• The rock characteristics
• Generally adequate cover/overburden
• Access to a large rigging area suitably located in relation to the tunnel and to the main road system
• Limits the number of cross cut tunnels in populated areas

Constructions in the area of Ski:
• A 3.5 km rail line, including 1.5 km above ground, and the new Ski station
• Rerouting the Østfold line north of Ski station and building two new connecting tracks
• A new road bridge crossing the rail tracks, with pedestrians and cyclist paths on both sides
• A modern public transport hub with an InterCity station and a bus terminal
• Six rail tracks and three central platforms, pedestrian underpath, travel plazas on both sides of the station, a bike hotel, parking and other facilities

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