The Spiral Tunnel in Drammen/Proposed by the Norwegian Tunnelling Society
NORWAY

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This is the story about the Spiral Tunnel in Drammen/Norway
Owned and operated by the City Administration of Drammen

A small community that almost 70 years ago decided to tunnel for
stone as an alternative, creating a tourist attraction as a by-product

This took place long before the re-use of tunnelling muck at all
became considered an asset and a valuable resource
The City of Drammen is located at the mouth of a river carrying the same name as the city.

Drammen is a short form of the Norse word 'drǫfn', it means wavy and refers to something undulating in waters.

The Summit whereto the Spiral tunnel leads was originally an observation post and an entrenchment to defend the city.

The ground conditions in the city is poor – most of the buildings are founded on quick clay and piled.

A need of quality material was present in the early fifties.

A brilliant idea came up to replace the existing quarry and build a tunnel for this purpose.
The Idea came from the City Engineer at that time, Eivind Olsen who has later on been nicknamed 'the Father of the Spiral Tunnel'.

Excavation works started in 1953 and it took 8 years to construct and install the tunnel.

The rock mass is good quality hosted by a particular local type of a granite – named after the city itself – Drammensgranitt.

A drive through the tunnel can be done at this youtube-video, https://www.youtube.com/watch?v=UYIF-CImsM8
Some hard facts about the Spiral Tunnel

- length: 1650 meter
- descend/ascend 10%
- 6,5 laps from bottom to top
- diameter of the spiral: 70 meter
- height between the floors: ca. 20 meter
- width at portal: ca. 9 meter
- free height is ca. 4.5 meter along the centre line
- excavated tunnel width ca. 9 meter

The annual daily traffic is 350 vehicles, whilst the variety is between around 100 to 2000, pending on the season.
At the 150 years anniversary of the City of Drammen, His Royal Highness King Olav the fifth (holding a bouquet of flowers) officially opened the Spiral Tunnel.
The Spiral Tunnel has served its purpose for almost 60 years then the Municipality of Drammen decided to have a critical look at the shape and standard of the tunnel.

An upgrade had been on the Agenda for some years

The main reason was that the tunnel was inspected by the Fire Department in Drammen and they concluded that:

"The Owner of the Spiral Tunnel could not document that the tunnel was designed, built and equipped according to relevant regulations on fire protection and prevention."

The Municipality of Drammen then commenced on a journey to improve the standard of the tunnel to fulfill relevant requirements and by that also increase attractivity of the tunnel.
The tunnel had the standard that prevailed in 1961, 60 years have elapsed since then and new requirements have arrived and OM was required.

The corona year of 2020 became the year of upgrading the tunnel and it has been closed until August, incl. most of the peak summer season.

The following is done in the current rehabilitation scheme:

- Tunnel support with rock bolts and sprayed concrete
- Local water- and frost protection where water is found
- New drainage system, side areas incl technical infrastructure
- Mechanical ventilation to cope with relevant fire scenarios
- Transformer stations and switch gir
- Emergency electrical capacity, lead-in lights, emergency stations
- Connection to traffic central
- Emergency niches
- 4G-mobile coverage and prepared for 5G
- Prepare for autonomys electrical busses
As a part of the upgrade of the tunnel the city of Drammen insisted that it should be considered how to increase the “wow”-Factor of the tunnel to make it even more attractive as a tourist attraction.

This has been done by active use of lighting in different colours to simulate the sunset outside and by different colours to identify the driving levels.
At present a 150 m long walkable emergency exit is located some 900 meters from the bottom (picture on the right). Also a driveable emergency exit has been considered. Located some midway from bottom to top, it provides access also to the Åspavillion, which is a well-known restaurant in the hillside named Bragernesåsen.
On the behalf of the Norwegian Tunnelling Society I wish all of you a best of luck for the Awards Ceremony and hope to see you all soon.

And on the behalf of the Spiral Troll - you are most welcome to come and see the Spiral Tunnel in new and better conditions, ready for the next 60 years of service.