



**ITA TUNNELLING
AWARDS 2019**



New Ulriken Tunnel Norway



Presented by : Torbjorn T. Bakketun



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SCOPE OF WORK:

- New railroad tunnel 7,8 km, Arna- Bergen
- First TBM on railroad in Norway
- Northern Europe`s busiest single track stretch





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New land, new partnership, new technology..



Stakeholders:

- BaneNOR (client)
- Norconsult (designer)
- Basler & Hofman (designer)
- Herrenknecht (TBM manufacturer)



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CHALLENGING HARD ROCK CONDITIONS

- 358 Mpa
- Very few fractures
- Major fault zone

ACTIONS TAKEN:

- Reduced rock support
- Increase operational time
- 20 inch cutters





CROSSPASSAGES FROM OLD TO NEW TUNNEL



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Miami, USA 18th November 2019

Torbjorn T. Bakketun Project Manager



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We build for a better society!

