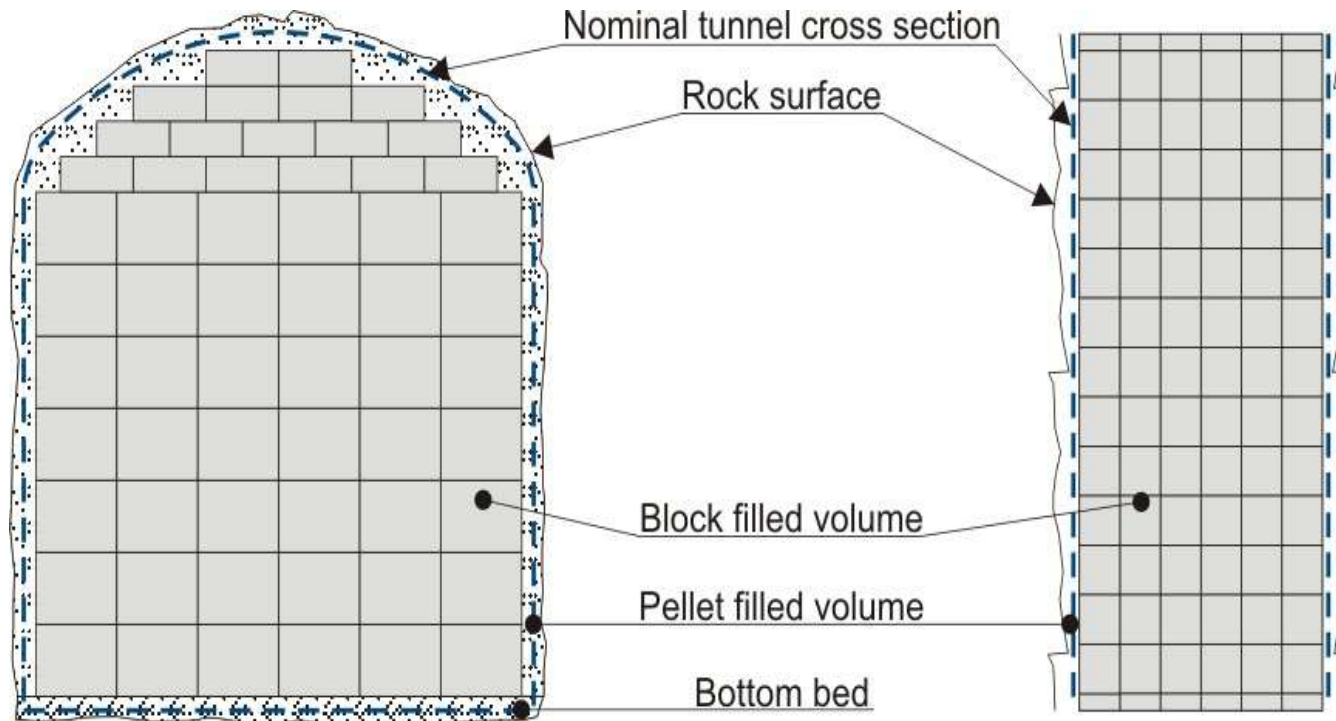




System Design of Backfill

Esther Jonsson

SKB:s reference design (TR-10-16)



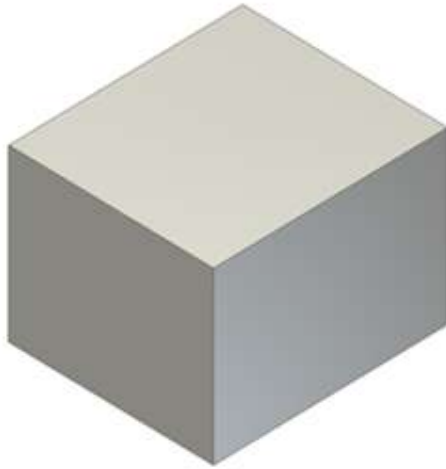
- Material: Montmorillonite content 45-90 %, for example IBECO-RWC-BF
- Block filling degree at least 60 %

Objectives

The main objective for SKB:s work regarding backfill development is to optimize and further develop the reference design by performing a system design.



Optimization of block size



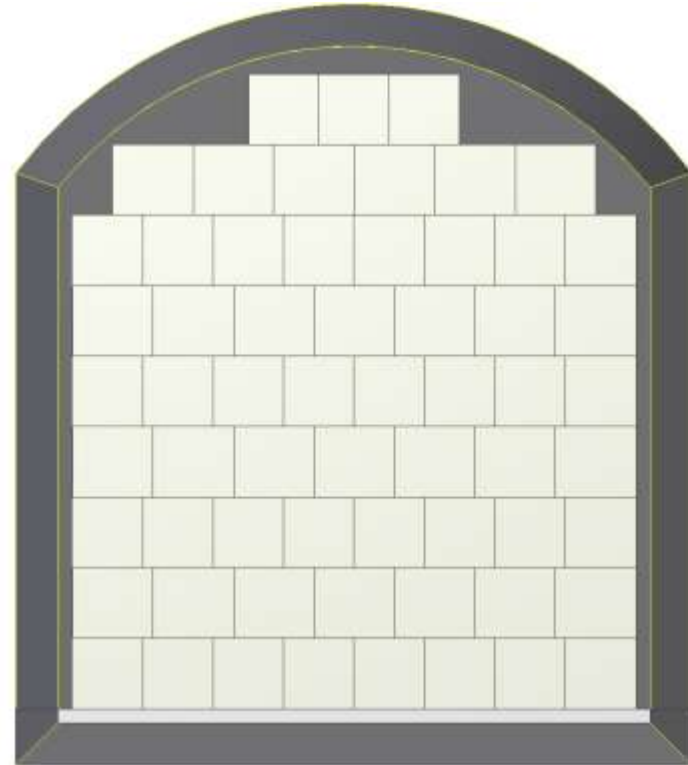
Aspects for handling :

- Weight due to time reasons.
- Height to fit the transport system.
- Length-width should have similar dimensions for better handling by the lifting equipment.
- Only one block size for easier logistics and more economic production.

Stacking pattern

Stacked brick pattern gives:

- More stability
- Less need for a compacted foundation bed
- Better load spreading from a raising buffer



Test of foundation bed



- Possible to use an uncompact pellet bed as a foundation for the block pile.

Influence of water inflow



Pellet production



Block manufacturing – Large blocks



Robot method

- Industrial robot with high IP-class.
- Vacuum tool for handling of blocks.
- Mobile platform for flexible arrangement.



Block installation and transport system



Plans for industrialization

- Description of process including inspections and inspection methods.
- Requirements on space, electricity, compressed air etc.
- Cost analysis
- Technical risk assessment



Thank you!

