Geosynthetic Reinforcement of High-Alkaline Soils: Basics and Two Typical Projects

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Two main possibilities to improve the mechanical behaviour of cohesive soils to use them as fill material for construction purposes:

- “chemical” improvement or stabilization by cement / lime
- “mechanical” stabilization using appropriate reinforcing geosynthetics

Combining these techniques:
- synergetic effect by reinforcing lime / cement stabilized soils by
  - appropriate geosynthetic reinforcement

Geosynthetic reinforcement: interaction with soil

Interaction tests in the shear mode: geogrid FORTRAC M and stabilised clay

Coefficient of interaction in shear mode

- Always > 1.0 de facto no interface, “perfect bond”
- Even better than in non-stabilised clay
- Nearly stress-independent

Similar results in the pull-out mode!

Retaining wall Unterkaka, Germany, 1997

Railroad embankment on piles, Büchen, German Rail (DB), 2003