

# Beneficial Use of Geosynthetic Materials as Anti-Uplift System for Underground Structures

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## Abstract

Mat foundations installed in impermeable soils with a high groundwater table will experience a substantially high uplift pressure due to hydrostatic effect. Conventional solutions to this problem are to increase structural weight, install tie-down anchors or anti-uplift piles. These methods all are costly, time-consuming, and incompatible with the principle of green construction. This paper presents a case study to show a novel approach by using geosynthetic materials to cope with the uplift problem. Based on field experience, this system proved to be rapid, simple, cost-effective, and conformable to the requirements of sustainable environment. The introduction of geosynthetic anti-uplift system (GAS) appears to be a successful and practical solution for this type of geotechnical difficulty.

Keyword : uplift, geosynthetic materials, underground structure