MebraDrain

Project report

Málaga Airport, Spain

The method
Vertical wick drains can be used for soil stabilization in areas with compressible and water saturated soils. When loads such as road embankments, hydraulic fills or dikes are placed on soft compressible soils, significant settlement may occur and this in turn could create serious problems. MebraDrain installed, evenly spaced, into the depth of the compressible layer, will allow pore water to flow in a horizontal direction to the nearest drain and escape freely, thereby reducing the consolidation period significantly.

The project
Due to the increase of visitors, the Málaga airport in Spain will be extended by two runways and several accompanying areas. The airport is situated in the delta of the river Rio Guadalmedina. Due to the strict requirements on settlement, installation of drain was designed till a depth of 30 meters. Even stiffer clay strata were consolidated, resulting in hard conditions to install the drains. For these works a total of about 3.500.000 meter of drain, type MD88H has been installed. After installation of drains and the settlement period, an actual start with the construction of the runways started in 2009.

Review
Drains have been used in a satisfactory way on the area to minimize settlement during useful life. Due to the possibilities to install drains in areas that were considered not to be penetrated by drain equipment, the original quantity of drain was increased during the project.

Equipment
For this project a CAT375 and a CAT385 have been used in combination with heavy winch rigs. During the most critical phases both sets of equipment ran 24 hours a day. Due to the presence of many power lines and the diversity of the area, a lot of tracking transports between areas was needed.

Drain configuration
Drains were installed up to a depth of 30 meters. Various triangular centre to centre distances have been used to optimize settlement in different areas, based on depth and settlement period.