Accelerated Soft Foundation Consolidation
Region III, Philippines
Central Luzon Link Expressway (CLLEX) is a toll road currently under construction in Central Luzon region that will connect the Subic–Clark–Tarlac Expressway (SCTEx) and Tarlac-Pangasinan-La Union Expressway (TPLEx) to the North Luzon East Expressway which is presently under construction in Cabanatuan towards San Jose, Nueva Ecija.

The project aims to provide a faster access from Metro Manila to Cabanatuan City which is the base (or hub) city for Pacific Ocean Coastal Area Development. It will also decongest the traffic along the Pan-Philippine Highway (Daang Maharlika).

The soil conditions where the expressway will be constructed consist of soft clay foundations. The time required for consolidation for surcharge loading may be unacceptably long and foundation instability may be a serious concern.

Solution

TenCate’s Alidrain® Prefabricated Vertical Drains (PVDs) have been chosen to address the soft soil consolidation for the expressway project. Using Alidrain® PVDs accelerated the rate of settlement of soft clay foundation layers and increased the undrained shear strength of the soft clay foundation. The increase in the rate of gain in the undrained shear strength provided an improvement in stability of the soft clay material.
Construction

The initial phase of the project required the installation of Alidrain® PVDs. This was done by first constructing a stable working platform over the soft clay foundation. Thereafter, the Alidrain® PVDs was installed by vertically vibrating a hollow steel mandrel containing the prefabricated vertical drains into the soft clay foundation with a 1 meter square spacing. The depth of the installation varies from 2 meters to 7.5 meters depending on the thickness of the soft clay foundation.

The use of Alidrain® PVDs significantly reduced the consolidation time and improved the stability of the soft clay foundation.